Table of Contents

United States
Department of
Agriculture

Food and
Nutrition
Service

3101 Park Center Drive
Alexandria, VA 22302

EFT Commercial Infrastructures and Implications for EBT Final Report

September 1994

Enclosed for your information is a summary of the EFT Commercial Infrastructures and Implications for EBT Final Report. This report assesses the existing commercial infrastructure of on-line Electronic Benefits Transfer (EBT) in the context of multi-state, multi-program EBT. The findings are based on interviews of respondents involved with the EFT commercial infrastructure.

If you have any questions regarding this report, please contact Steven Carlson, Director, Family Programs Staff, Office of Analysis and Evaluation, (703) 305-2115.

Table of Contents

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Table of Contents

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Table of Contents

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The Price Waterhouse project team wishes to thank the many individuals who contributed to this analysis of the national on-line debit infrastructure and its implications for food stamp EBT. Special gratitude is due to staff of the Food and Nutrition Service, particularly Ken Offerman of the Office of Analysis and Evaluation who served as Project Officer and Erin McBride of the Program Development Division. Both provided critical guidance and support throughout the study. In addition, while the study has benefitted from the review and input of many individuals at FNS, special thanks are due to Steve Carlson, Theodore Macaluso, and Carol Olander for their attention and commitment to its completion.

The analysis of the EFT commercial infrastructure is the product of the cooperation of literally hundreds of food retailers, EFT processors, financial institutions, shared regional networks, and equipment manufacturers and vendors. They provided not only essential information on the systems maintained and services offered by their companies but valuable insight on the current and future operation of the on-line debit infrastructure regionally and nationwide. Their willingness to participate in this study underscores the importance of these stakeholders to current and future EBT systems and their commitment to the success of EBT nationwide. While space limitations do not allow us to recognize the many private sector participants in this study, a list of significant contacts is provided as an appendix to this report.

Special recognition is owed to the staff of Benton International and Geosocial Resources, Inc. (GRI) which served as subcontractors to Price Waterhouse under this study. At Benton International, project efforts were directed by Maria Arminio who was assisted by Michael Lloyd and several support staff. Ms. Arminio and her staff brought to this project an understanding of electronic payment systems and the EFT commercial infrastructure that greatly enriched these reports. At GRI, Dr. James Welsh employed highly innovative geographic information systems (GIS) technology to spatially analyze and present data on the on-line debit capabilities of FNS authorized food retailers across the country. Dr. Welsh was assisted by Lixin Yu, who tirelessly compiled, analyzed, and mapped the study data. Both firms added dimensions to this study that could not have been achieved by Price Waterhouse staff alone, making this truly a collaborative effort.

TABLE OF CONTENTS

Table of Contents

EFT COMMERCIAL INFRASTRUCTURES AND IMPLICATIONS FOR EBT

Introduction

The Food and Nutrition Service (FNS), through previous analysis, demonstration, and evaluation, has identified the deployment and operation of direct debit point of sale (POS) terminals to be a key determinant in the cost of developing and operating state-level electronic benefit transfer (EBT) systems. As a result, the issue of building on the existing commercial on-line debit infrastructure to support Food Stamp EBT has received considerable attention among the EBT stakeholders including; government agencies, the food retailer community, and especially the EFT industry. This study reflects an initiative by the agency to comprehensively address major issues shaping this discussion.

The results of the study are presented in three parts:

- This report examines nine current issues shaping the discussion of how expanded food stamp EBT could build on the existing commercial infrastructure. This is a cross-cutting report; it extracts from many areas of the study to present each issue from several perspectives. In addition, this report responds to current issues in the context of multi-state, multi-program EBT; a context less clearly defined at the outset of this study.

- TECHNICAL REPORT #1: POS EQUIPMENT AND CAPABILITIES presents a detailed introduction to the EFT commercial infrastructure through discussion of commercial payment service models, retailer payment system functions, and equipment configurations and capabilities. In addition, the report analyzes the technical, operational, and cost challenges of building on the existing infrastructure.

- TECHNICAL REPORT #2: AN ASSESSMENT OF THE CURRENT ON-LINE DEBIT CAPABILITIES OF FOOD STAMP AUTHORIZED RETAILERS IN TWELVE GEOGRAPHIC AREAS

OF THE COUNTRY THROUGH THE APPLICATION OF GEOGRAPHIC INFORMATION SYSTEM (GIS) MAPPING TECHNOLOGY presents the results of our study of twelve major metropolitan areas and their current on-line debit capabilities. For each area, schematic diagrams illustrate the common ways in which on-line debit transactions are currently processed. Through the use of geographic information system (GIS) technology, this report includes detailed maps illustrating the POS and non-POS capable authorized food retailer base.

Methodology

A complete discussion of the study objectives and research methodology employed is presented in Technical Report #1. The preparation of this report, however, presented a slight departure from the original focus of the study in an effort to respond to the constantly evolving EBT debate. As such, this report frames many of its issues in the context of multi-program, multi-state EBT. To accomplish this, an extensive supplemental data collection was conducted. The collection consisted of detailed structured telephone interviews (i.e., typically one to two hours in length) with various EBT stakeholders including food retailers, EFT processors, third party processors, shared regional networks, and equipment manufactures and vendors. The results of these interviews were summarized, and where common themes emerged they are noted.

Several of the issues presented in this report draw almost entirely from the original data collection and analysis performed in completing Technical Reports #1 and #2. The discussion of many of the issues, however, reflects the positions of the stakeholders as expressed through their supplemental interviews. Where appropriate, we have noted that these are the opinions of members of the EFT industry, and not of the government.

ISSUE 1

Does on-line direct debit point-of-sale (POS) continue to represent the best means of building Food Stamp program EBT on a large scale?

In issuing its 1992 regulations governing the development and operation of state EBT systems for the Food Stamp Program, the Food and Nutrition Service acknowledged the demonstrated feasibility of on-line technology to deliver and control program benefits.[1] The legislative mandate under which the regulations were developed specifically directs the use of on-line technology as an operational alternative.[2] Key reasons for this include: extensive prior testing of on-line EBT solutions; on-line being the only viable payment system with nationwide presence; and, while technically feasible, off-line systems lack viability as a short term (i.e., within the next 10 years) alternative.

Implicit in the regulatory guidance was the assumption that EBT in general, and for the food stamp program in particular, is poised to expand on a large scale. While the regulations provided a legal and procedural framework for that expansion, the obvious physical framework was the on-line debit infrastructure. The question remained, however, whether the existing infrastructure could be used to support the development of on-line EBT. Indeed, in none of the on-line demonstration programs had EBT transactions either originated at pre-existing food retailer terminals, or reached the host processor by way of an existing regional EFT network.

This study presented a unique opportunity to more fully explore how the existing commercial infrastructure could support on-line EBT functionality. The study examines the technical, financial, and operational challenges that arise when expanding on-line food stamp EBT by building on the commercial infrastructure. In short, we conclude not only that building on the existing infrastructure will be critical to the future of large scale food stamp EBT, but

[1] "Food Stamp Program: Standards for Approval and Operation of Food Stamp Electronic Benefit Transfer Systems." Federal Register 57, no. 63, April 1, 1992.

[2] Title XVII, Pub. L. No. 101-624, the Food, Agriculture, Conservation, and Trade Act of 1990. Section 1729 of the Act amends the Food Stamp Act of 1977 to authorize the use of on-line EBT systems as an operational alternative to coupon issuance in the Food Stamp Program, provided they are cost-effective compared to the system being replaced.

that on-line debit at the point-of-sale (i.e., POS debit) is still best suited to accomplish that goal. The following factors, each discussed in detail below, contribute to this conclusion:

- ✓ The 1990 Farm Bill provides existing legislative authority for Food Stamp EBT in an on-line environment;
- ✓ The commercial payment systems capabilities required by EBT map most directly with on-line debit and not with alternative payment systems;
- ✓ A substantial on-line debit infrastructure, adaptable to EBT, exists with growing usage among major food retailers;
- ✓ Demonstration programs have shown on-line EBT can be a cost-effective alternative to food coupon issuance;
- ✓ Multi-program EBT adds State and Federal cash benefit programs as on-line debit applications transparent to the recipient.

Existing Legislative Authority

A critical factor to the growth of food stamp EBT on a large scale is the legislative authority created for an on-line issuance alternative by the Mickey Leland Memorial Domestic Hunger Relief Act of 1990 (i.e., "The Farm Bill"). In drafting the legislation, Congress explicitly recognized the importance of using existing commercial EFT systems to lower EBT costs.[3] The regulations subsequently issued by the Department define basic functional requirements, and clarify the review and approval process for on-line EBT systems. In establishing common rules for on-line EBT, the regulations explicitly encourage the use of the existing on-line infrastructure.

[3] H.R. Rep. No. 916, 101st. Cong., 2d Sess. 1093-94(1990)

Alternative Payments Systems are Less Suited to Expanded Food Stamp EBT

There are several electronic payment system models in existence today, supporting a wide variety of payment alternatives. The most prominent models in the food retailer environment support credit card, debit card, and check authorization.

The EFT commercial infrastructure supporting credit card transactions is supported principally by MasterCard and VISA, on behalf of their member financial institution acquirers and card issuers, and third party processors. Unlike on-line debit, credit transactions require two discrete steps; one for initial authorization, and a second to post the charge and accomplish clearing and settlement. Off-line debit cards are indistinguishable to the merchant from the national credit cards, and utilize the same infrastructure. As with credit, no personal identification number (PIN) is required for off-line debit. ACH debit, or proprietary debit, is implemented by the retailer (i.e., as opposed to a financial institution) who issues cards to approved customers. ACH debit card transactions are processed like an electronic check. Check authorization systems help retailers identify customers who have written bad checks in the past. With varying degrees of sophistication, check authorization systems query in-store, headquarters, or externally supported positive or negative files. Funds flow remains a separate function, as retailers deposit checks for clearing with their merchant bank.

A useful way to evaluate the ability of alternative payment systems to support EBT transactions is by comparison across four essential functional areas:

- Authorization processing
- Customer identification and validation
- Card and terminal technology
- Compatibility of message formats

Table 1.1 below, entitled *"Payment Services Topology"*, provides this functional comparison between the various retailer payment systems introduced above.

Payment Services Topology

Function	Check Authorization	National Credit	Debit			EBT
			Off-Line[4]	ACH	On-Line	
Customer identification, Validation	Varied	Signature	Signature	PIN	PIN	PIN
Terminal	None or Scan or MSR	MSR	MSR	MSR and PIN Pad	MSR and PIN Pad	MSR and PIN Pad
Message Format	Proprietary	ISO or ANSI	ISO or ANSI	ISO or ANSI	ISO or ANSI	Industry Standard
Authorization						
• Mode	Negative or Positive File	On-line or Floor Limit	On-line or off-line	Negative file (usually) or Positive File	On-line	On-line
• Database	Internal or External	External	External	Internal	External	External
• Liability	Retailer	DFI or FSC	DFI	Retailer	DFI	EBT Processor

Table 1.1

Legend
TPP = Third-party processor
MSR = Magnetic stripe reader
DFI = Depository Financial Institution
FSC = Financial Service Company

As the table illustrates, an EBT transaction most closely models the on-line debit transaction. Both are performed on a magnetic stripe terminal with PIN pad and require the on-line transmission of an encrypted PIN to validate customer identification and initiate a transaction against an external database. The message length and structure for EBT most closely parallels on-line debit transactions as well; with credit and check authorization messages substantially shorter. Liability for the transaction rests with the authorizing party, typically the EBT processor. In the case of credit, off-line debit, and check authorization, the cost and technical complexity of modifying these systems to support EBT

[4] "Off-line" refers to current commercial off-line debit payment services, not off-line technology such as integrated-chip (i.e., "smart") cards.

easily precludes each from being a viable foundation for large scale EBT.[5]

Substantial and Growing On-line Debit Infrastructure

POS terminal deployments in all market segments have experienced very strong growth in the last five years. The news is especially good for the food retailer environment, by far the largest segment, where 75,000 of the approximately 155,000 terminals nationwide are deployed. Overall, terminal deployments grew by an annualized rate of 29% between 1988 and *June* 1993. In the grocery and convenience store market segments (i.e., the market component representing the food retailer population), POS deployments have grown over the same period at annualized rates of 38.6% and 33.5% respectively. **Figure 1.1** graphically depicts the annual growth rates in terminal deployments by industry sector over the last six years.

Predictions of continued growth in the food retail segment are cause for optimism, yet should not be expected to match peak rates of the recent past. Indeed, on-line debit has and will continue to grow in those areas that offer the greatest potential transaction volumes. Traditionally targeted markets (e.g., supermarkets and gas stations), while far from saturated, will share growth with now more relatively lucrative areas including fast food chains, drug stores, and retail merchandisers.

Relative to the alternate payment systems of credit, off-line and ACH debit, and check authorization, on-line debit enjoys a foothold and promising future in food retailer establishments. While credit has gained strength over the last ten years, its use in the grocery store is a more recent phenomenon. Most merchants today include both credit and debit in planning for or upgrading current payment systems. Strong economic incentives exist to operate all payments applications from a single platform. Relative to on-line debit, ACH and off-line debit activity underscore their subordinance in the food retailer environment. ACH debit is supported by relatively few retailers. Many retailers are opposed

[5] A detailed comparison of alternative payment systems with on-line debit and EBT is provided in VOLUME II, Section II.C. *Rationale for Modelling Food Stamp EBT on the POS On-line Debit Infrastructure*.

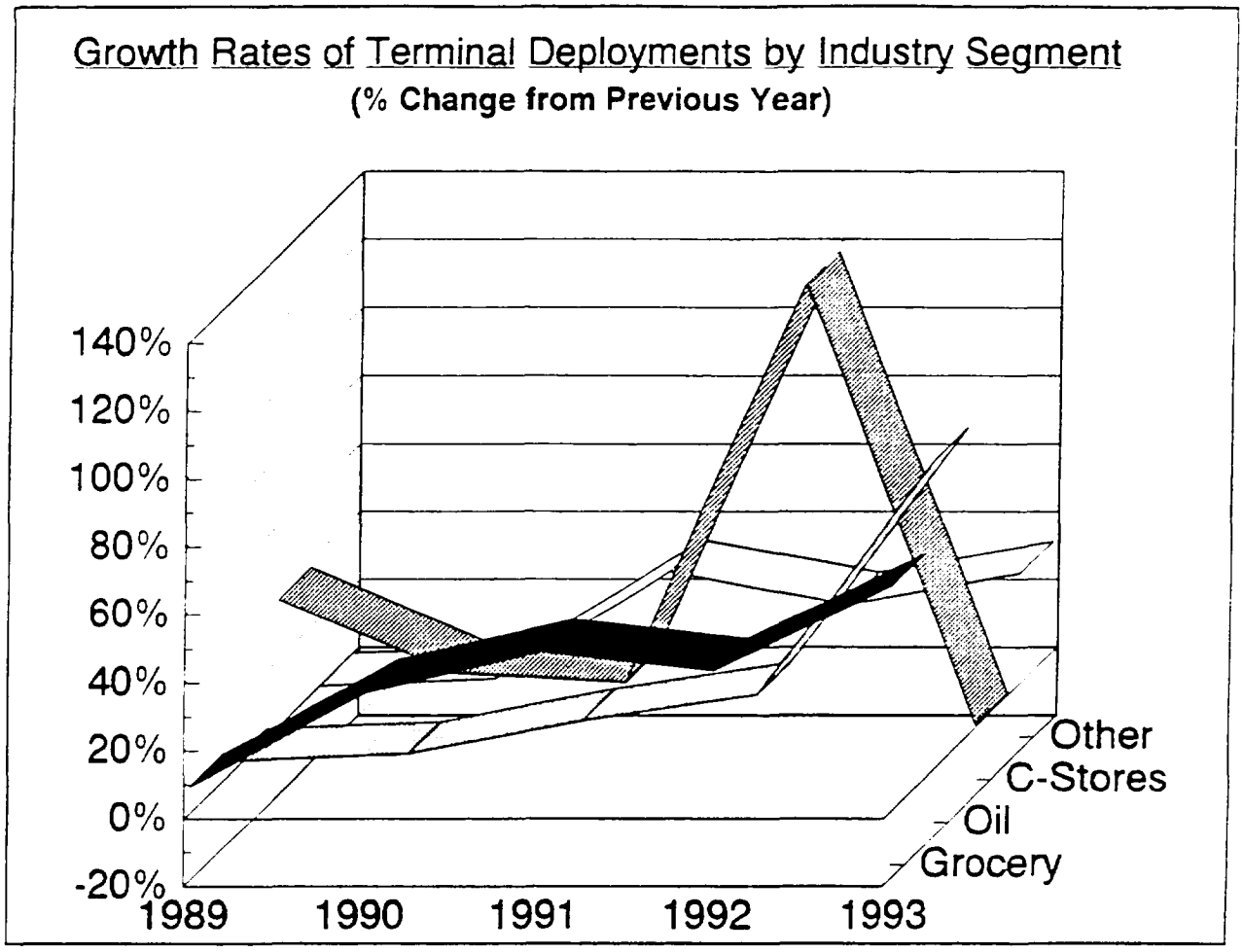


Figure 1.1

to paying credit card rates for off-line debit transactions that typically displace not credit but lower ticket cash and check sales. Finally, no retailers contacted under this study expressed any intention to adopt alternative payment systems technologies in large scale in the foreseeable future.

On-line EBT Can be Cost Effective

Recently completed evaluations of the state-initiated EBT demonstration programs in Ramsey County, MN and Bernalillo County, NM found the on-line models can be a cost-effective alternative to coupon issuance in those sites. In both study areas, the report concludes that, "the food stamp portion of each EBT

system costs less to operate than the estimate of what each site's coupon issuance costs would have been in the same period."[6]

The cost effectiveness of on-line EBT extends beyond the administrative costs to include other stakeholders in the system. As a group, food retailers' costs of participation decreased with on-line EBT, as did the participation costs to recipients and financial institutions. Taken together, the effect of on-line EBT in the demonstration projects was a decrease in the total cost *per case month* compared to food coupons. **Table 1.2** below illustrates the absolute and percentage differences in administrative and total per case month costs before and after EBT.

FOOD STAMP PROGRAM COST COMPARISON

	New Mexico			Ramsey County		
	Coupons	EBT	%Δ	Coupons	EBT	%Δ
Administrative Costs Only	$4.04	$3.07	**24.0%**	$4.53	$4.38	**3.3%**
Total Cost per Case Month	$15.22	$7.80	**48.8%**	$19.79	$13.15	**33.6%**

Table 1.2

An important additional finding of the evaluation study was that it cannot be assumed that EBT systems in other locations would be as cost-competitive as those in Minnesota and New Mexico. In fact, the Maryland statewide EBT system shows cost savings but not as large as in New Mexico and Ramsey County.[7]

One factor contributing to the cost-effectiveness of EBT is the baseline cost of the coupon issuance system being replaced. In those areas of the country enjoying relatively low coupon issuance costs, EBT faces a more difficult challenge. Another factor, however, will be the ability of the EBT vendor to spread the

[6] John A. Kirlin et al., The Impacts of State-Initiated EBT Demonstrations on the Food Stamp Program. Cambridge, Massachusetts: Abt Associates Inc., June 1993.

operational costs of EBT over a larger base of commercially provided services. In this regard, the study concludes that, "EBT system integration with commercial EFT services may be an absolute requirement for a cost-competitive system." As the table above indicates, the economy of such commercial integration is reflected by lower New Mexico EBT costs.

On-line is Best Suited for Cash Benefit Programs

State administered as well as Federal direct cash benefit programs are natural companions to food stamp EBT,[8] and are likely to be part of multi-program EBT solutions. The technical viability of EBT for cash benefit programs has been demonstrated in several areas of the country where Aid to Families with Dependent Children (AFDC), Child Support Enforcement (CSE) and state General Assistance (GA) have accompanied food stamps on a single EBT card. Federal direct benefits including Social Security, Supplemental Security Income (SSI), Veterans, and Railroad Retirement have been available to over 5,000 recipients in the Houston area since late 1990. In each demonstration location, cash benefits are accessed through the on-line debit infrastructure using ATMs and cash-back at POS terminals. In addition to food stamp authorized retailers, customary recipient cash access points (e.g., check cashing establishments) have been equipped with POS terminals to support cash-benefit delivery.

From a technical perspective, the on-line debit infrastructure is really the only infrastructure currently suited to support EBT for cash programs. Cash EBT transactions most closely resemble commercial on-line debit transactions in message length and format. To the commercial world, the only difference between EBT and another debit transaction is the bank identification number (BIN) that directs routing for authorization to the EBT processor. In addition, the on-line infrastructure of ATMs and POS terminals is the only significant existing source of increased

[8] State administered cash benefit programs often share the same state certification system as the Food Stamp program, thus facilitating database access for EBT. By closely modelling commercial debit, EBT presents a viable alternative for unbanked recipients of Federal direct cash benefit programs.

access for program participants.[9] Finally, the cost to retrofit the existing on-line devices to accommodate an alternative EBT solution is considered prohibitive at the present time.[10]

Cash and non-cash benefit populations overlap significantly, thus providing a practical reason for providing all benefits on a single card. Beyond this, including cash benefits in an on-line EBT system can help make EBT more cost-competitive to all programs.[11] Multi-program EBT not only enables cost sharing among benefitting Federal agencies, but provides a larger card base and greater transaction volumes across which the EBT vendor can spread development and operational costs.

Summary

For reasons spanning the areas of technology, function, and finance, we conclude that on-line direct debit point-of-sale is still best suited to expand Food Stamp EBT on a large scale. With existing legislative authority, substantial and growing commercial POS deployments, and the proven cost-competitiveness of an on-line solution, the Food Stamp program is best positioned to support the swell in state and Federal EBT planning by advocating those solutions based on using the current on-line debit infrastructure.

[9] This access comes at a cost. Commercially, ATM transaction fees can typically run four times the cost of comparable POS transactions. Concerns exist as to whether EBT can be cost-effective if ATMs are used. As one example, through a case-specific ACF policy change, Texas will offer cash program recipient access to their benefits only through point of sale terminals. This action, of course, requires the full support of the food retailer community in offering cash-back at the point-of-sale.

[10] For example, it would cost $3,500 on average per ATM to add a chip card reader to enable off-line EBT functions.

[11] The state-initiated EBT impacts report referenced earlier found that the addition of cash benefit programs to the EBT system lowered EBT costs to the Food Stamp Program by between 9 and 15 percent.

ISSUE 2

What are the major business issues surrounding a multi-state, multi-program EBT solution predicated on building on the existing commercial infrastructures?

The evolution of EBT from small state-operated demonstrations to state-wide systems to planned multi-state systems necessarily has created new business relationships among the stakeholders. For example, state contracts with EBT vendors and teaming arrangements within the vendor community have defined new roles and responsibilities for many firms as opportunities have developed. Throughout this period, similar evolutionary change has transformed the EFT industry. Super-regional networks have formed, non-banks compete strongly to provide payments services, and some networks are reclaiming processing functions from third parties.

The implication of these developments is simply that multi-state, multi-program EBT will require both the development of new business relationships and, in many cases, modification of those already established. In this context, there are several key business issues with the power to shape the technical, operational, and financial future of EBT:

- ✓ To truly build on the existing infrastructure to its greatest potential, the role of the EBT processor must be re-examined, and possibly re-defined;
- ✓ Retailers must be able to retain existing business relationships for debit while adding EBT; and,
- ✓ Government leadership is being called for by the commercial sector to establish business rules for operating within the EBT system.

Examining the Role of the EBT Vendor

State procurements for EBT services to-date have required the EBT vendor to perform functions that have traditionally been segregated between two or more entities in the commercial payments infrastructure. Under contract with the State, the EBT

vendor acts as card issuer[12], front-end processor, merchant acquirer, and terminal driver; all functions that are often performed commercially by separate entities. **Figure I.2.1** below illustrates the broad operating responsibilities created by this current business relationship.

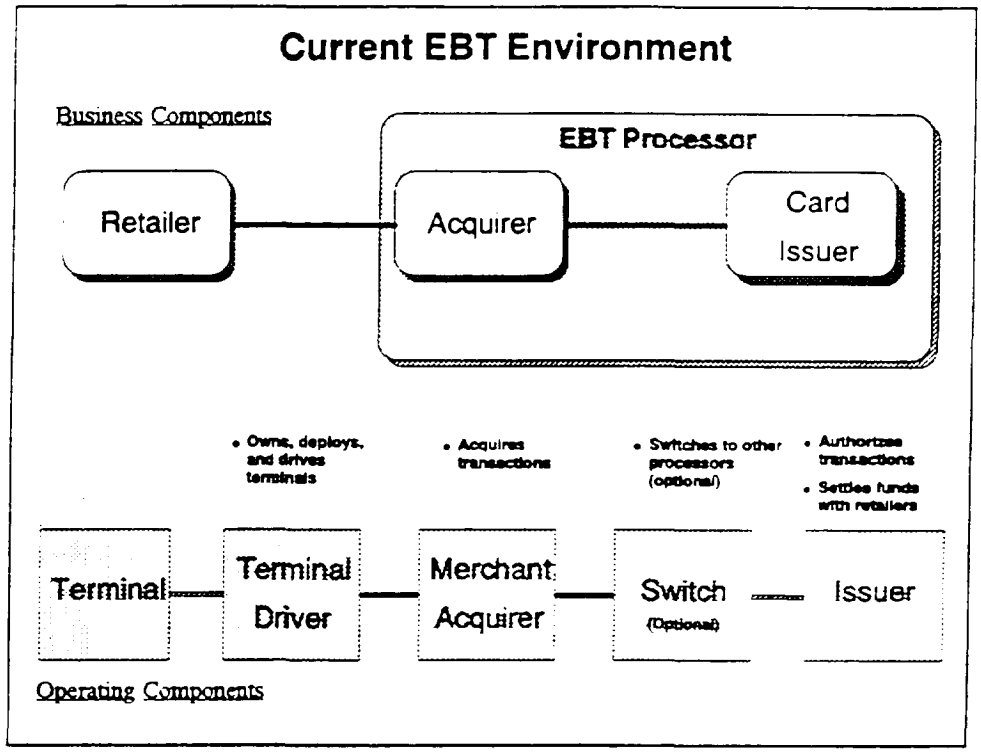


Figure I.2.1

As the figure shows, the EBT vendor's terminals have historically preceded commercially deployed devices, and all steps in transaction processing are performed by the vendor. In some cases, retailers have elected to purchase commercial payment services from the EBT vendor as part of the installation. Recent litigation draws into question the viability of this arrangement over the long term.

[12] The card issuer, generally a financial institution in the commercial environment, is the organization that: (1) maintains the consumer relationship and depository account on behalf of the customer; and, (2) issues the magnetic stripe card. The latter function is often provided by a third party on behalf of the financial institution. Historically, the EBT processor has performed these card issuance functions on behalf of the state. From a contractual standpoint the state is the card issuer, and has out-sourced some or all of its functions.

Until very recently, retailers have lacked choice and selection in implementing EBT as a payment application. While retailers have always had the option to select their own equipment, third parties supporting EBT were not historically providers of on-line debit payment services in their retailer locations. Recently, in Maryland and New Jersey several retailers have elected to support EBT on existing payment platforms. Re-examining the role of the EBT vendor would offer an opportunity to address retailer and vendor concerns with the current system, and might bring price competition for EBT services to the retailer level; the effect of which might lower EBT costs for all assuming EBT processor costs do not rise to compensate for lost business.

Additional considerations in the current system

Beyond the issues of competitiveness raised above, there are several additional considerations that bear re-defining the EBT vendor role. First, the EBT vendor currently must support third parties on an *ad hoc* basis. As such, the responsibilities of each party have become ambiguous. As agent for the State, the EBT vendor must provide customer services for retailers including the help-desk, supplies, and maintenance. In the current system, retailers reported that they can't easily differentiate between the responsibilities of their third party and those of the EBT vendor. For example, one retailer reported confusion over who to call when the EBT system is temporarily down.

Furthermore, while the EBT vendor must certify all third parties in the system, the ability of the vendor to enforce program rules and standards is ambiguous in the current environment. Industry participants in this study suggested that formalizing the role of third parties in EBT systems is critical to resolving this issue. Resolution of these points is consistent with the historical desire of states to implement "turn key" EBT systems. That is, rather than the state acting as broker between the vendor, retailers, and third parties, the terms and conditions for services and the responsibilities of each party must be formalized at the outset.

What would the future resemble?

A cornerstone of large scale EBT in the future requires acknowledging the current business relationships in the EFT infrastructure, and building on these. Activities supporting

commercial on-line debit are generally segregated between card issuing and transaction acquiring functions. *Our research suggests that the role of the EBT processor, as the future develops, will shift toward card issuer functions*[13] *and away from transaction acquirer functions.* One reason for this is the current and projected growth in retailers implementing on-line debit payment systems. As more retailers seek to support EBT on existing payments platforms, either in-house or via third parties, they adopt the transaction acquiring function.

For retailers without existing systems, separating the issuer and acquirer functions would enable market forces to influence cost elements of the EBT service that have traditionally been bundled together. Specifically, if retailers are given a choice of terminal deployers — each having been approved to offer the EBT service — price competition is enhanced, and retailers purchase only the level of functionality they require. Our research found that many retailers will regard EBT as an entree into broader payment services (e.g., debit, credit, frequent shopper programs). In many areas, it is likely that EBT will act as a catalyst in spurring commercial systems development. This is partially dependent on whom ultimately shoulders the burden of terminal costs. Some retailers may view EBT as a necessary cost of doing business, while others are likely to view EBT as a means of subsidizing the development of their payment systems.

A separation of issuer and acquirer functions would also be consistent with private sector perceptions of the role of government in EBT. Our interviews found general agreement that as EBT develops government should focus on acquiring and authorizing benefits transactions; rather than deploying state-of-the-art point-of-sale systems. **Figure I.2.2** illustrates a possible future EBT environment; if the role of the EBT processor is re-defined along these lines. This configuration would require that the role and responsibility of third parties be formally addressed.

If the Government chooses, the EBT environment can evolve to more closely resemble the commercial environment. To enable this, however, several underlying business issues must be

[13] As previously stated, the public entity (e.g., state, consortium of states) is technically the card issuer on whose behalf the EBT processor is acting.

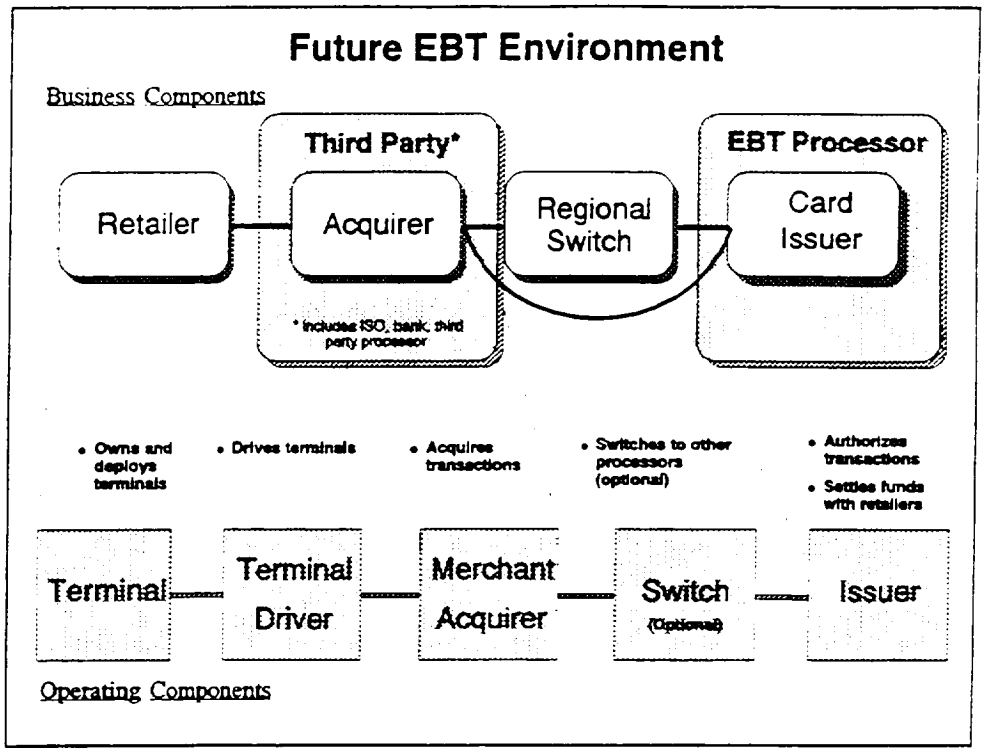


Figure I.2.2

addressed:

- Standard operating rules must be established to guide the increased participation of retailers and third parties as transaction acquirers in the EBT system. For example, the costs of designing and building interfaces to the EBT processor could be reduced with the specification of a government standard for this interface.

- The terms of compensation (i.e., if there is to be any) to retailers and third parties for terminal deployment, driving, and passing transactions to the EBT processor must be defined. This includes the compensation of the network switch in cases where it is utilized. Further, the decision includes whether a standard per-transaction fee or monthly per-terminal fee, — or both or neither — should compensate third parties for functions otherwise performed by the EBT vendor. At a minimum, the

terms should enable market forces to influence the fee structure for transaction acquiring services.

Retaining Existing Retailer Business Relationships

A reason why Government may wish for EBT business relationships to more closely resemble the commercial environment, is the desire of food retailers to maintain their existing business relationships for payment services. **Figure I.2.3** below illustrates the most common business relationships in the commercial payments environment.

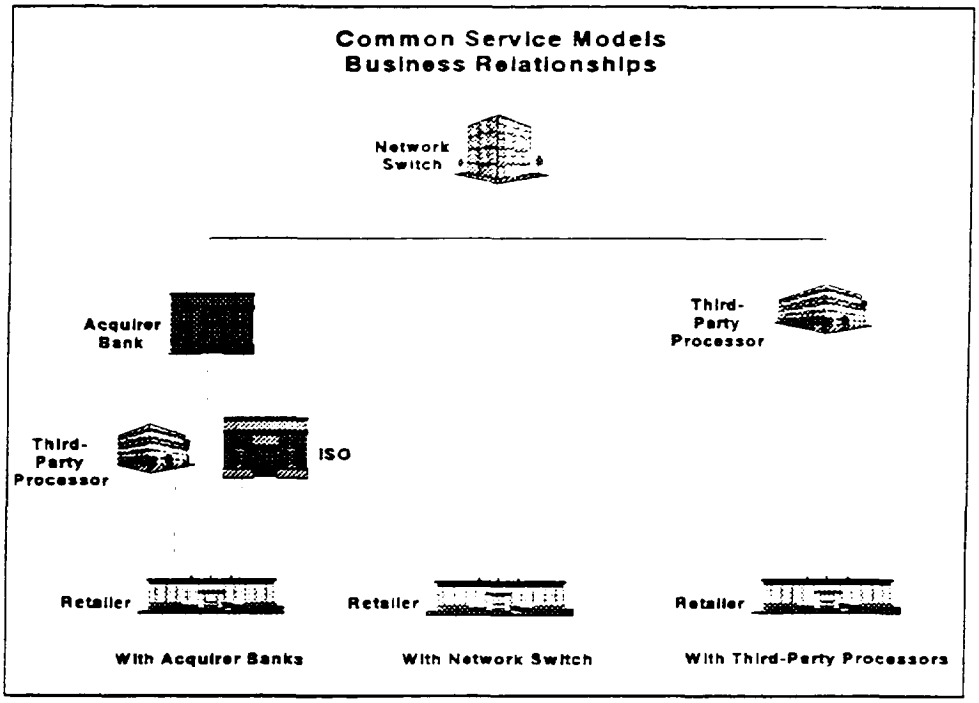


Figure I.2.3

All retailers access general payment services, such as credit and debit, through some form of business sponsorship. In commercial on-line debit, the retailer is sponsored by the network switch; either directly, or through a merchant acquirer bank or third party processor. Acquirer banks often subcontract the solicitation of merchants to independent sales organizations (ISO) or third party processors, as part of a total package of services.

As a rule, retailers do not want EBT to disrupt their existing business relationships. Having negotiated their best deal for

commercial services, retailers will look to their existing service providers to support EBT as an add-on service.[14] This is consistent with several themes that recur throughout this study:

- ✓ Retailers value their autonomy in implementing payment systems; many would feel constrained by the technology and functionality of government-deployed terminals.

- ✓ Retailers strongly want EBT to resemble commercial debit, seek to minimize inter-state differences in EBT systems, and prefer a single external "pipe" as opposed to multiple interfaces. Adding EBT to existing business relationships is a clear means to these ends.

Government Leadership in Rulemaking

In the current EBT service model (i.e., as illustrated in Figure I.2.1), the EBT processor is responsible for ensuring compliance with all Federal EBT regulations and state-specific policies. The processor defines the technical standards (e.g., message format, interface requirements, etc.) for operating the EBT system, to ensure that compliance can be achieved. In a relatively closed environment (i.e., few third parties), this has been sufficient.

As the need to accommodate third parties processors and retailer systems has increased, the responsibilities of the EBT vendor have become more difficult. Specifically, to accommodate third parties in the existing sites, the EBT processors have defined the message and interface standards and passed-on the Federal EBT requirements. As in the commercial environment, third parties must certify their EBT application with the processor. Enforcement of these standards, however, is somewhat ambiguous. Our discussions with EBT processors suggest that without clearer operating rules for EBT, ensuring third party

[14] This discussion focuses on the business decisions generally facing large and medium sized retailers. Of course, a large proportion of the FNS-authorized food retailer base comprises small retailers who may be the last stores to purchase commercial electronic payment services.

compliance is a difficult task at best.[15] In existing networks, third parties are expected to "step-up" to any system changes made by the processor; although their ability to do this varies. Further, in many networks third parties can freely make equipment changes and modifications, providing their performance to the EBT processor is unaffected. This is regarded by some processors as too loose a relationship. Some network environments more tightly control third party participation through costly certification fees and sponsorship rules that place liability for third party non-compliance on the sponsoring entity. In the opinion of study participants, a current weakness in the EBT environment is that retailers can contract with third parties for EBT services when those same parties may not meet network performance standards for other payments applications.

Government leadership in establishing clear operating rules is a critical need as EBT grows to include more public and private stakeholders. As in today's network environment, the operating rules form the basis for business relationships between the players. As a general rule, any issue that makes EBT different from commercial debit must be addressed by the operating rules. The scope of the potential operating rules is addressed in the following issue.

Summary

An important trend is the emergence of third party service providers. The trend underscores the need for retailers to build EBT on their existing payment system platforms. This solution may increase price competition and thus result in reduced costs. As more third parties move to support the EBT application, the duties of the EBT processor will likely shift from terminal driving toward card issuance functions. With this shift, a corresponding need is created for operating rules and standards that clearly define the roles, responsibilities, and accountability of each stakeholder in the system. Respondents encouraged government leadership in this area.

[15] The issue of operating rules and their components is discussed further in ISSUE 3.

ISSUE 3

What are the major technical issues surrounding a multi-state, multi-program EBT solution predicated on building on the existing commercial infrastructures?

Introduction

Two assumptions anchor this discussion: First, there is the issue of whether a single or multiple processors will serve the multi-state area. For the purposes of this discussion, we are assuming the former, although as we'll see, adopting the latter would not dramatically alter the technical issues faced. A second grounding assumption is that we focus the discussion on the front-end processing aspects of EBT, giving back-end settlement and funds flow issues less technical attention.[16]

The technical issues that are seen as critical to a multi-state EBT solution have implications for many of the stakeholders in the process. **Table I.3.1** below introduces the issues identified in our research, and the stakeholders for which each is particularly important. Following the table, the issues are discussed in detail.

	Stakeholders				
	State and Federal Government	EFT/Third Party Processors	Food Retailers	Equipment Vendors	Regional EFT Networks
Need for EBT Operating Rules and Standards	✓	✓	✓	✓	✓
Processor Capacity and Load Management	✓	✓	✓		✓
Gateways and Interfaces	✓	✓	✓		✓
Retrofitting Existing Payment Systems		✓	✓	✓	

Table I.3.1

[16] The Food and Nutrition Service, under a separate task order contract, has studied in depth the settlement and reconciliation processes of EBT in preparing model specifications for an EBT settlement service.

For the purposes of this discussion, financial institutions have not been included in this matrix as the technical issues they would face parallel those faced by third parties, who are often contracted to deploy and drive terminals on the financial institution's behalf.

Need for EBT Operating Rules and Standards

As described in Issue 2, the network switch is the end point of all business relationships in commercial debit. Through their operating rules, networks establish the standards to which their members must adhere in providing payment services. Through the years, networks have brought about significant standardization in such areas as transaction sets, branding (i.e., who issues the card and what is put on it), and performance standards. Networks hold their members and processors to these standards to ensure that the convenience and access promised consumers is consistently delivered.

In the EBT environment, operating rules would govern such issues as transaction set, message format, communications protocol, stand-in processing, and re-presentation. As multi-state EBT develops, so will direct business relationships between retailers, third party processors, and the EBT processor. Industry representatives suggest that the role of the regional network "tying" together these entities may diminish, creating an arena in which network operating rules no-longer apply.[17]

Government operating rules for EBT would apply to all parties originating and processing EBT transactions. Beyond establishing clear standards for performance — across benefit programs, for example — operating rules can provide a basis for accommodating EBT in commercial debit. These issues include but are not limited to the following:

- ✓ Transaction Set — The FSP minimum transaction set currently includes the balance inquiry transaction, which is non-standard in commercial debit. In addition, cash programs require the "cash back - all"

[17] A complete discussion of the prospective roles of third party processors and shared regional networks is presented in Issue 4.

transaction, also non-standard. Operating rules must define the required transaction set for each benefit program on the EBT system.

✓ Message Format — Proprietary message formats are commonly used by EBT vendors for commercial and EBT services. FSP regulations mandate that these formats meet appropriate industry standards, but do not specify current ISO and ANSI standards by name. Message format also includes message content, data element positions, and data element values. With additional parties handling the transactions, and multiple programs on the system, these and other components of the message format *must be tightly defined by the operating rules*.

✓ Balance on Receipt — FNS regulations require that EBT receipts include balance remaining; a departure from commercial POS debit. As of March 1, 1997, the application of Regulation E will not require balance on receipt for cash benefit programs; a difference from the FSP that must be addressed in operating rules.

✓ Stand-in Processing — While fairly common in commercial debit, stand-in transactions are not generally allowed for FSP EBT.[18] Merchants seeking to support EBT and commercial services on a single platform argue that stand-in is transparent to the customer and an unnecessary deviation from the commercial world. Nevertheless, stand-in is vulnerable to fraudulent transactions and their associated liability. Regardless of the final position on stand-in, operating rules must address the issue and, if supported, with whom liability would rest.

✓ Re-presentation — Currently an optional requirement, and handled differently in each EBT site, re-presentation is considered by some retailers a

[18] The New Mexico EBT system "store-and-forward" function constitutes stand-in processing, but us unique to the current EBT operating systems.

confusing and cost-inefficient departure from commercial standards. Other retailers, however, have insisted that re-presentation be supported but that its associated liability be borne by the state or processor. Operating rules must address the viability of re-presentation in a multi-program, multi-state environment.

✓ Voice Authorization — Currently supported by the EBT processor, but becomes less easily accomplished by retailers when there are multiple terminal drivers (e.g., retailers and third parties) in the system. Operating rules must specify uniform procedures for obtaining voice authorizations.

✓ Maintain Clerk I.D. — Required in some EBT sites for each food stamp transaction record. This function is not standard in commercial debit and would need to be clarified through standard operating rules.

✓ Card Entry Mode — Some commercial systems require this information (i.e., card swiped vs. key entered) be retained to aid in fraud monitoring and investigations. Not currently required for FSP EBT, but worth consideration in defining operating rules.

Processor Capacity and Load Management

EFT processors plan and allocate their resources based on projected peaks in service needs. These operational plans go well beyond CPU capacity to include telecommunications network loads, help desk staffing and facilities, automated response unit (ARU) operations, and so forth. Processors evaluate their current capacities when adding additional "clients", and try to make the most economical use of the resources. For example, two or more clients (e.g., card issuing banks, state EBT programs) are likely to share the same front-end equipment (i.e., switches, ARUs) while their account databases are stored separately.

Multi-state EBT systems will not change this planning process. Processors will, however, look for flexibility from states in staggering (i.e., distributing across a range of dates) benefit issuance. Each state's ability and willingness to stagger issuance

will depend both on the expectations of current recipients, and the programs being converted. Many states already stagger food stamp issuance across up to twenty days in larger counties. AFDC and other cash benefits are harder to stagger, as many people depend on their checks arriving near the first of the month to pay rent. The largest window for staggering cash benefit issuance is felt to be about one week on either side of the first of the month.

In a single processor multi-state environment, accommodating a highly peaked load near the first of the month will come at a substantial economic cost to the EBT vendor, and implicitly the states. Processors will add transaction processing, telecommunications, staff, and facilities capacity as necessary, although much of this will become under-utilized excess capacity after the peak period has passed. Of course, some resources (e.g., help-desk staff) might be re-deployed to other areas, while others (i.e., rented help-desk space and facilities) carry monthly fixed costs.

In addition to processors, food retailers must size their staffing according to issuance peaks. As with the current coupon system, peak periods in EBT can have a significant impact on through-put at the checkout lane; adding a human element to the stress on the system. Food retailers and EFT processors alike will look to states for flexibility in staggering benefit issuance as EBT expands.

Gateways and Interfaces

The technical issues presented by a multi-state, multi-program EBT system grow as additional eligibility systems, processors, and third parties are incorporated. Our research suggests that three issues pertaining to system interfaces and gateways are of particular importance:

- Eligibility System Interfaces - While most states have implemented integrated eligibility determination systems, some continue to retain separate systems by program. Building interfaces to multiple eligibility systems will be costly for EBT vendors, as no standardization (e.g., on-line vs. batch, etc.) currently exists. In addition, there is no standard database structure in those states with integrated

eligibility determination systems. This presents another technical challenge for the EBT vendor. Without standard front-end interfaces, which are unlikely, multi-state EBT adds no new cost-efficiencies in this area.[19]

- Cross-Border (Intra-Regional) Transactions - In a single-processor multi-state model cross-border shopping is greatly simplified when the processor is the terminal driver. With multiple acquirers, standards will be necessary to ensure technically compliant interfaces with the EBT processor. Technical constraints are greater in a multi-processor model, unless the issuer and acquirer functions are separated as described above. As such, operating rules and standards will be necessary to ensure that acquirers provide comprehensive EBT services to retailers; including interfacing with several EBT processors. Retailers want EBT differences to be transparent, and will look to their merchant service providers to support this.

- Inter-Regional Transactions - Portability of benefits across regions will require processors and networks to provide gateways. Participants in this study suggest that the cost of providing this service relates to the degree to which the EBT interface requirements can be standardized.

Retrofitting Existing Retailer Payment Systems

Given that many retailers will seek to add EBT within their existing business relationships, the need to retrofit existing payment systems is a key technical issue. Retailers facing this decision will likely consider the following issues, regardless of whether they have implemented an in-house system or purchase commercial services from a third party:

[19] A related technical issue is how many eligibility system interfaces are envisioned in a multi-state system. For example, some states may prefer to make internal modifications to present the vendor a single interface. Other states may prefer multiple program-specific vendor interfaces.

- ✓ What technical modifications are required to fully meet the operating rules and standards (to be) established for EBT? Can these be accomplished within the existing payment system? How difficult will this be?

- ✓ Who will bear the cost of these modifications? Are they significant enough to cause me to seek reimbursement? If so, will the government help defray these costs through an acquirer fee, monthly terminal fee, or other?

These questions help frame the business decision that retailers face when considering retrofitting. Our research suggests that retailer perceptions on cost sharing vary as widely as the payment systems to which they pertain. Some retailers expressed support for various reimbursement schemes[20], while others felt the benefit of having all applications on a single platform well outweighs the cost of retrofitting. The more EBT is made to resemble commercial debit, the more likely the latter position will predominate.

Summary

Key issues for the Food Stamp Program include: (1) EBT operating rules and standards; (2) strategies to manage processor capacity and peak transaction loads; (3) the cost and technical complexity of creating interfaces between state systems, the EBT processor, and other stakeholders (e.g., third parties); and, (4) technical and cost challenges in retrofitting existing retailer payment systems to support food stamp EBT.

In recognition of this issue's importance, the technical implications of retrofitting are addressed separately in Issue 6.

[20] As an example, the EBT vendor in Maryland and New Jersey currently reimburses retailers up to what it would have cost the vendor to deploy terminal in each lane. This is accomplished through a monthly fee per terminal, per lane, and a fee per EBT transaction performed on the retailer's own equipment. Per terminal fees are capped at the number of terminals required under the FNS regulatory terminal deployment formula as set forth in 7 CFR §274.12(g)(4)(ii).

ISSUE 4

Are the EFT networks and third party processors critical to effectively building on the existing EFT infrastructure to support Food Stamp EBT? Are they prepared?

Until very recently, the development of state EBT systems wholly preceded the development of on-line debit among local food retailer establishments. As such, the EBT terminal was the first debit terminal in retail lanes, and all terminal driving and transaction routing was the responsibility of the EBT vendor. In the typical EBT program, multi-lane stores are equipped with LAN-capable terminals connected to a store controller that supports external communication to the EBT vendor for transaction authorization and settlement functions. The EBT terminals "stand alone" in the lane, and function as an entirely independent payment system. In single lane stores, the EBT terminal again stands alone and contains an internal modem supporting dial-up communication to the EBT vendor's processing site. **Figure 4.1** below depicts the traditional EBT service model.

The EBT system in Maryland was the first instance when a third party processor supporting on-line debit (i.e., Concord) switched food stamp EBT transactions to the State's vendor (i.e., Deluxe Data Systems).[21] In this model, the third party serves as transaction acquirer for several food retailers, providing gateway services to regional and national networks, and now the EBT vendor. A similar agreement was recently made in New Jersey between another third party processor and the State's EBT vendor. This third party provides electronic payment services for several large food retailers.

Concurrent with the evolution of EBT has been the growth and proliferation of third party service providers. Third parties now include major EFT processors with significant market presence. These "new" third parties now support a full range of payment services to retailers, while providing switching and card issuer services to networks and financial institutions.

[21] Prior to Maryland, third parties supporting EBT had not previously supported on-line debit for their retailers. For example, in New Mexico EBT was added by a third party that previously provided check authorization services. The Maryland example is cited here for its relevance as a model of building food stamp EBT on current third party on-line debit services.

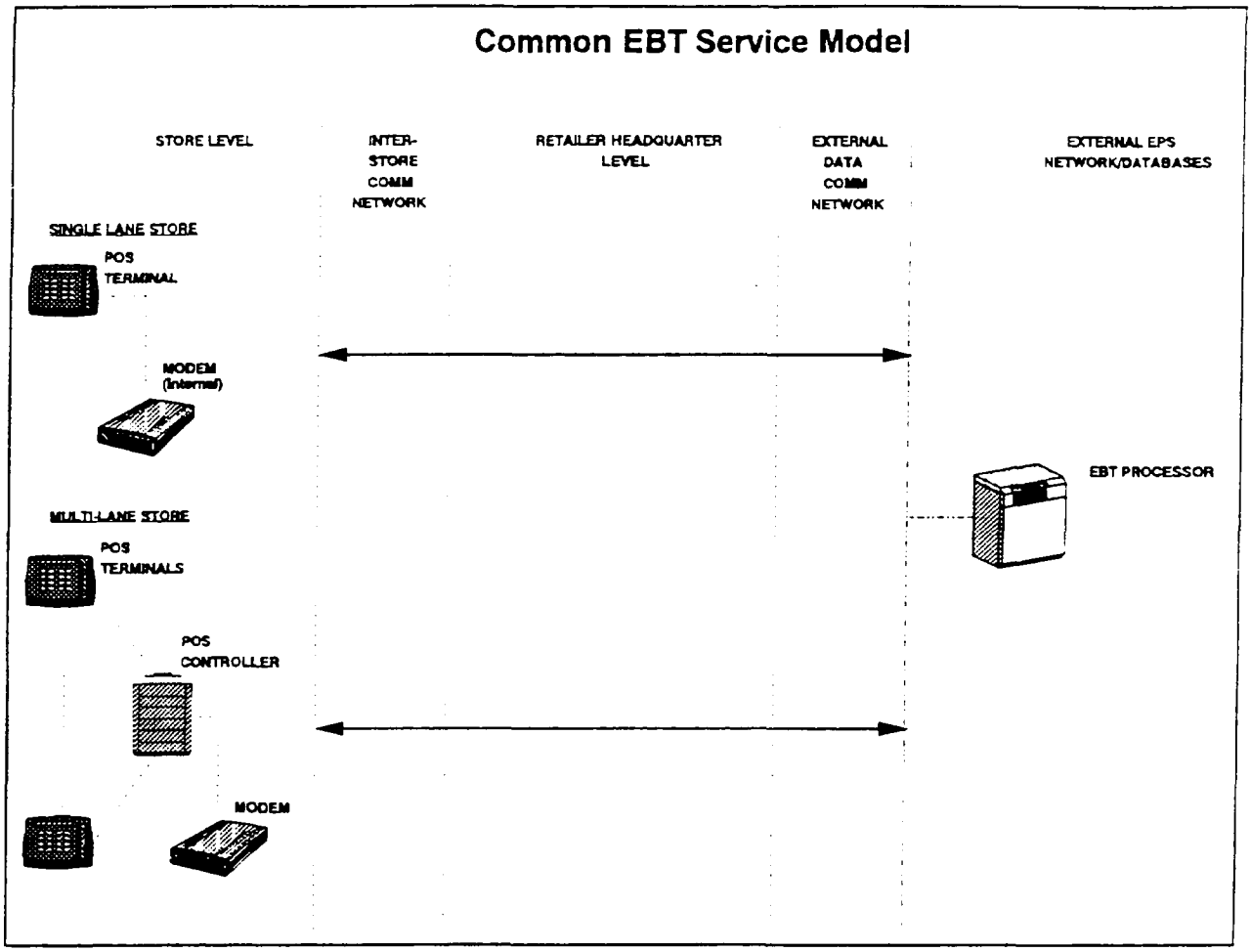


Figure 4.1

The introduction of third parties and the EFT networks in EBT highlights several important issues:

- Many retailers with existing payment systems will seek to maintain current business and physical relationships when adding the EBT application
- Third party processors are central to many existing retailer payment configurations, and provide an infrastructure of un-branded networks
- EBT vendors will seek to acquire transactions at the lowest possible cost, potentially to the exclusion of the branded EFT networks

Each of these issues are discussed in greater detail below.

Maintaining Existing Payment Services Relationships

From the food retailer's perspective, EBT represents an additional payment system application with technical, operational, and of course financial implications for each store. While current food stamp regulations mandate that retailers cannot be made to bear additional cost in participating in the EBT system[22], our research found that many retailers consider EBT as one component of a broader payment systems business decision. Factors weighing in that decision revolve around providing attractive services to customers, that improve customer convenience, and can increase market share. Toward that end, many retailers are concerned about keeping all payment applications on a single system platform. This follows from the retailers' desire to minimize the administrative overhead which supports electronic services, as well as the time required for customer checkout. EBT can contribute to this goal, as on-line EBT systems have been shown to lower administrative costs to many stakeholder groups, including food retailers.[23] *A complete discussion of retrofitting existing payment systems to accommodate EBT is presented in Issue 6.*

There is no single physical configuration supporting on-line debit for retailers with existing payment systems. The possibilities vary according to the retailers needs, and the stakeholders providing the terminal driving function. With this in mind, we identified the three most common configurations or "service models" supporting on-line debit at the point of sale. To avoid confusion, the in-lane terminal configuration (e.g., stand beside, interfaced, or fully integrated) is only one component of the larger payments

[22] 7CFR §274.12(g)(2) states, "Authorized retailers shall not be required to pay costs essential to and directly attributable to EBT system operations as long as the equipment or services are provided by the State agency or its contractor and are utilized solely for the Food Stamp Program. In addition, if Food Stamp Program equipment is deployed under contract to the State agency, the State agency may, with USDA approval, share appropriate costs with retailers if the equipment is also utilized for commercial purposes."

[23] The Impacts of State-Initiated EBT Demonstrations report cited previously found that the *per case month* cost of retailer participation declined in New Mexico by 22 percent from $3.25 to $2.53 and in Ramsey County, MN by 20 percent from $7.66 to $6.15.

infrastructure through which on-line debit transactions are processed. The three most common service models are:

Option 1: Retailer buys the debit services from a network switch

Option 2: Retailer buys debit services from an acquirer bank or third party processor

Option 3: Retailer implements an in-house system

Figure 4.2 below provides a detailed schematic of these three options. As the figure also indicates, there are five "zones" through which a transaction moves when presented for authorization. These "zones of service provision" are the:

- Zone 1: Retailer store level
- Zone 2: Inter-store communication network
- Zone 3: Retailer headquarters level
- Zone 4: External data communications network
- Zone 5: External electronic payment services (EPS) networks and databases

While these zones are critical to any discussion of payment systems retrofitting, as can be found in Issue 6, they also highlight the importance of third party processors and regional EFT networks in the current on-line debit environment. Third party processors often provide the single "external pipe" from the retailer headquarters to the authorization databases. The regional networks switch transactions in Zone 5 to the appropriate card issuer's authorization database.

Option 1, often referred to as store-level direct connect, requires that the network switch drive store terminals and provide processing support for debit. Under this option, the retailer establishes a depository relationship with a member financial institution to provide funds clearance. Under Option 2, the retailer obtains all terminal driving services from an independent third party processor or an acquirer bank, with no direct connection to the network switch. When a retailer implements a complete in-house system, as in Option 3, all terminal driving and transaction routing is accomplished at the headquarters level. Switching to external databases is accomplished either by direct connection to

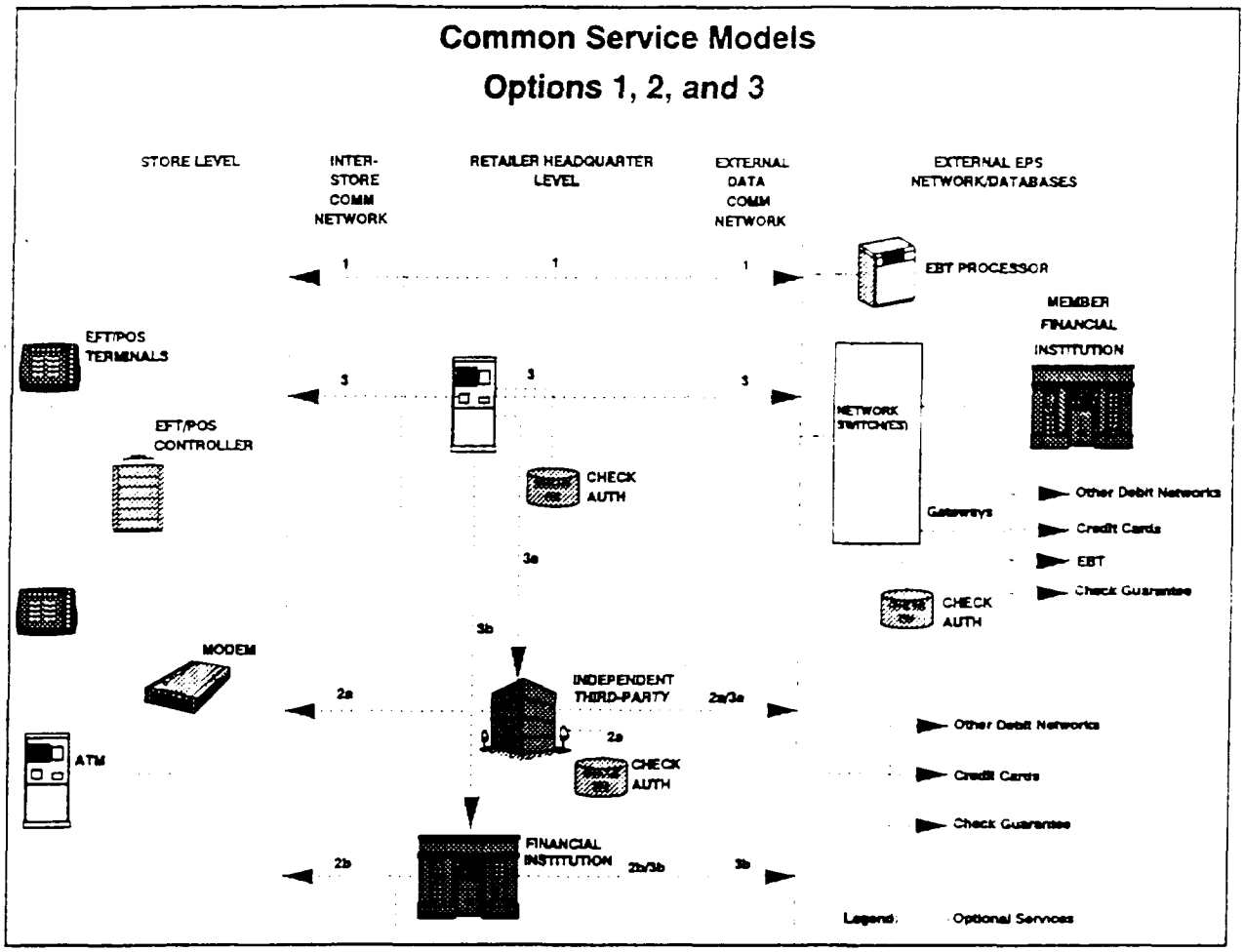


Figure 4.2

the network switch or through a gateway service provider such as a third party processor.

As the service model figure illustrates, the EBT processor is regarded as simply an additional authorization point in the external environment. The implication is that retailers will seek to route EBT transactions to the processor through their existing physical configuration; whether it's Option 1, 2 or 3. There are several reasons for this assumption:

- ✓ Retailers will prefer to add the EBT application to their current payments platforms rather than allow vendor-deployed EBT terminals in their lanes. Beyond the popular argument that checkout counter space is a premium, retailers point to advantages

including: reduced keying errors if an integrated system is currently used as opposed to stand-beside terminals; clerks need training only on one system; centralized support and maintenance functions.

✓ The fewer external links, the better...Adding a link to a processor has a direct cost to the retailer for software and hardware modifications, and certification and testing. Further, each link is an additional settlement point in the system; making settlement and reconciliation more complicated for the retailer.

✓ In a multi-state and potentially multi-processor environment, retailers surveyed would prefer that EBT perform as a single application. That is, differences in state EBT programs would be transparent to the retailer. Many retailers will therefore prefer existing gateway service providers (i.e., third parties) to support EBT transaction routing for authorization and settlement to multiple states through their vendor(s).

Above all, food retailers want EBT transactions to be virtually indistinguishable from debit. While this has technical and program policy implications — discussed in Issue 2 — it also relates clearly to the physical configurations that have followed from retailers' business relationships for payment services.

As the service model figure illustrates, third party processors and network switches help define the most common physical configurations; and as such will be critical to the expansion of multi-state, multi-program EBT.

Third Party Processors Provide Un-Branded Networks

A food retailer's desire to use it's third party processor to support EBT is just one half of the picture. The EBT processor selected by the State, or group of states potentially, brings another valuable perspective. There is a cost to the processor associated with each EBT transaction, regardless of how it reaches the processor. In the model previously illustrated in **Figure 4.1** the vendor, as terminal driver, directly assumes all costs of acquiring

transactions. If this model changes, and retailers and third parties move to support EBT on existing payment platforms, commercial precedent is that EBT vendors would have to negotiate the most favorable price possible from the acquirer. If the acquirer is the retailer, as in service model Option 3, it is likely that the EBT vendor may seek a direct connection to the retailer's headquarters switch. Because retailers may expect some level of compensation for driving the terminals and switching transactions, if they regard EBT to be another commercial application, it is critical that the Government define the relationship carefully. If the use of third parties is to benefit the retailer, the Government may wish to specify that it will not absorb extra costs. If the use of third parties lowers EBT processor costs, the Government may wish to claim a share of the savings.

Many retailers, preferring a single "external pipe" and point of settlement, have out-sourced terminal driving and switching to third party processors. If such stores are to remain in the Food Stamp Program, they and the EBT vendor must negotiate a price with the third party for the delivery of EBT transactions for authorization. The ceiling on the price should remain the cost of supplying and driving EBT-only terminals, if EBT is to continue being a cost-effective option for the Government. An important fact, often overlooked when discussing the "current EFT infrastructure", is the significant investment many third party processors have made in building sophisticated proprietary networks for switching transactions. These *un-branded* networks offer an attractive alternative to the shared regional EFT networks for routing EBT transactions. **Figure 4.3** below illustrates the authorization process under this scenario.

Many third party processors currently have direct links to known and potential EBT vendors for the purpose of supporting other commercial payment services (e.g., on-line debit, credit). In such cases, adding the EBT application to the transactions supported would require certification of the application with the processor, but would utilize the existing direct link. When no direct link exists, the third party must weigh the costs of developing and certifying the link against the benefits of receiving the full acquirer fee from the EBT vendor (i.e., rather than essentially sharing it

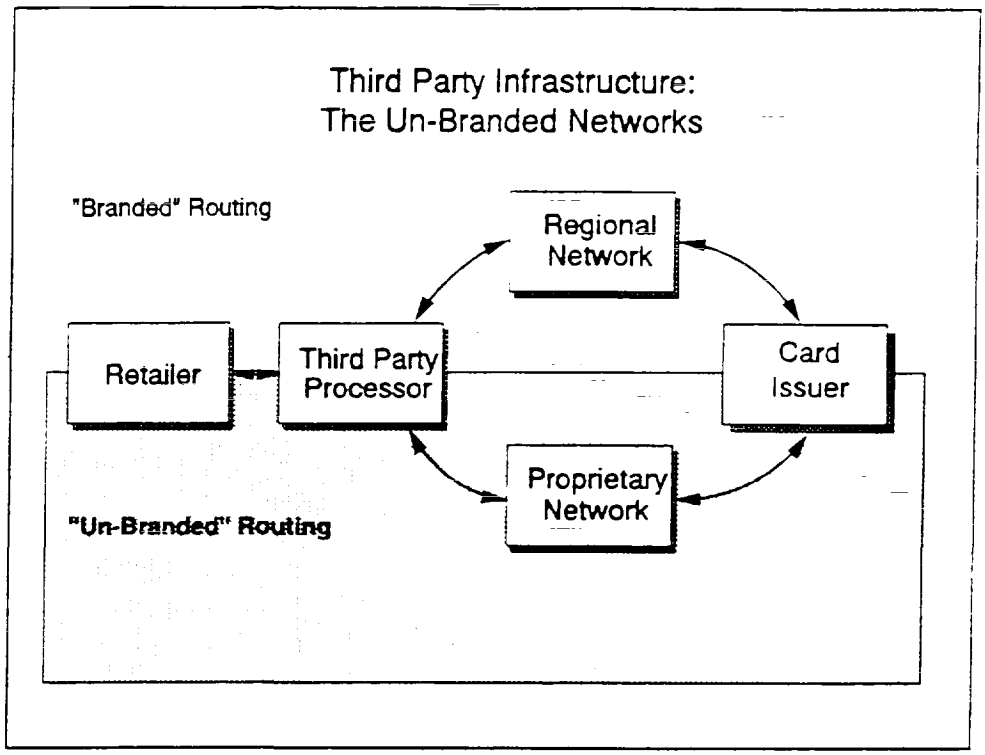


Figure 4.3

with a network switch)[24]. These and other factors shaping the decision-making of EBT vendors, third parties, and regional networks are discussed in greater detail below.

EFT Network's Role Uncertain for POS EBT Transactions

The regional EFT networks role in on-line debit varies significantly. In some areas, the network drives terminals (i.e., service model Option 1), switches transactions, and provides settlement, reconciliation, and reporting in addition to brand-management and other member services. In other areas, networks no-longer drive retail terminals and solely act as transaction routers. In both models, the network serves the critical functions of routing "on-us" transactions to member banks for authorization and providing a gateway for "off-us" transactions to other regional and national debit networks.

[24] Our conversations with several regional EFT networks supported the concept of "un-branded" networks gaining importance as EBT develops. These networks indicated that current large third parties could likely switch EBT transactions at a lower cost than the network could offer.

With the addition of EBT as a payments application, this role becomes somewhat less certain. For the first time, the card issuer (i.e., the EBT processor on behalf of the State) is not a member financial institution. In many retailer configurations, the transaction acquirer may be an acquirer bank (i.e., financial institution) providing front-end processing, but could very likely be a third party processor. As introduced above, alternative paths for transaction routing become viable with EBT, contributing to the uncertainty surrounding network use.

The decision on how to route POS transactions for authorization by the EBT processor will ultimately be resolved on a case-by-case basis. The competitive positions of the stakeholders, their alliances, their existing infrastructures and interfaces, all will contribute to the decision. In short, it all comes down to basic economics, with the retail store and EBT vendor seeking the least-cost solutions. The key factors each stakeholder will weigh in negotiating transaction routing agreements include:

EBT Vendor:

- ✓ Existing direct link to third party? If not, what internal cost to support new link?
- ✓ What transaction volumes planned from the third party? At what price to the acquirer?
- ✓ Existing interface with regional network?
- ✓ What price offered by network to switch POS transactions? What additional price to third party for terminal driving? Total cost?
- ✓ Cost to drive terminals at retailer directly?

Retailers

- ✓ Benefit of third party processor vs. EBT-only terminals?

Third Party Processor:

- ✓ Existing link to EBT vendor? If not, what cost to develop and certify a direct link?
- ✓ Existing network interface? If not, what cost to develop and certify?
- ✓ What planned POS EBT volumes in this area and future markets in which this firm is an acquirer?
- ✓ Do benefits of switching through network (i.e., avoid building direct link to this and potentially other EBT processors) outweigh the costs (i.e., collectable switch fees)?
- ✓ Do retailers serviced require EBT?

Regional EFT Network:

- ✓ Existing interfaces with third party and EBT processor?
- ✓ Anticipated EBT transaction volumes and effect on pricing.
- ✓ Potential to gain gateway business to other EBT processors.

Our research with regional EFT networks indicated a general consensus that, in the short term, EBT vendors will seek direct links to major food retailers and third party processors rather than utilizing the prevailing network switch for POS EBT transactions. This is expected to hold true particularly within regions where large third parties have a strong presence, and food retailers with their own switches are willing to create an additional external interface.

Longer Term Role of Networks Appears Larger

As EBT expands nationwide the EFT networks see an additional role developing: providing gateway services and administering standard rules for inter-regional transactions. If an ultimate goal of EBT is to enable inter-state transactions transparent to the recipient and retailer, the need is created for seamless processing nationwide.

In addition, as more food retailers implement electronic payment systems, regional networks will likely switch a higher volume of EBT transactions. Several factors are likely to influence this trend. First, EBT vendors will be deploying fewer directly connected terminals in retailer lanes; Second, to minimize EBT development costs, retailers will seek lower cost gateways to the EBT processor. Third, EBT processors may seek to consolidate their external interfaces as opposed to continually developing additional third party and retailer direct links. Of course, working counter to these trends will be the increase in EBT volume acquired by third parties. EBT processors may prefer direct links to third parties if the third parties are willing to bring their commercial business to the processor, along with EBT.

Network Use More Certain for EBT Transactions at ATMs

The preceding discussion concerned the switching of EBT transactions from the point-of-sale for authorization. In a multi-program EBT system, however, the existing ATM infrastructure will likely be used to provide additional points of access for cash-benefit program participants.[25] ATMs are deployed by financial institutions that generally belong to the local shared regional network. The network provides gateway interfaces to other regional and national ATM networks. Consumer transactions at non-proprietary[26] ATMs are routed through the regional network for authorization by the card issuing bank.

To date, EBT transactions for cash-benefit programs have been routed through the regional ATM networks.[27] This is likely to continue in the future, as the regional network is the only entity tying together the ATMs of various owners. It is also probable,

[25] We use the term "likely" to reflect the decision of the Texas Department of Human Services to seek a waiver limiting cash access in the Texas EBT pilot to point-of-sale devices only.

[26] ATMs not belonging to the card issuing bank at which the consumer's demand deposit account resides.

[27] In Maryland, the dominant regional network is the MOST network. Deluxe Data Systems, as processor for the MOST network and the Maryland EBT program, routes ATM transactions to itself. In New Jersey, MAC is the dominant regional network, although approximately 40 percent of the ATMs in the EBT program areas carry the NYCE brand as well. As New Jersey's EBT vendor, Deluxe has negotiated with MAC and NYCE to obtain the best price for transaction acquiring.

however, that within EBT program areas there will be ATMs deployed and driven by third parties on behalf of financial institutions. These third parties have historically positioned themselves as bidders on EBT projects, and could thus bring proprietary "non-branded" networks to the switching of EBT transactions at both ATMs and POS terminals.

ATM Routing and Current Business Relationships

To further complicate the discussion of how EBT cash transactions at ATMs will be routed, we cannot forget the existing business relationships that third party processors have with financial institutions. As introduced in ISSUE 2, major third party EFT processors' business areas include ATM deployment and driving, and switching transactions for "branded" networks.[28] Financial institutions and networks determine routing strategies (i.e., primary vs. secondary paths) in the context of their business agreements. The switch must administer and comply with these rules. This has two implications for the future of EBT.

First, if the EBT vendor also deploys and drives ATMs, there is an existing connection to the vendor to acquire transactions. However, if the vendor's contract with a financial institution mandates routing through the regional network, the issue of whether network fees will apply to all EBT ATM transactions arises. Secondly, in a multi-state multi-processor environment, EBT vendors will need to route transactions to each other (i.e., resulting from cross-border ATM use). Many EFT processors already have multiple connections to each other, but network routing rules dictate which path is chosen. For example, network

Summary

The functions played by regional EFT networks and third party processors are changing but both will be critical to the future of food stamp EBT. The roles each will play will depend on the desire and ability of food retailers to maintain existing business and physical relationships while adding the EBT service; and, a case-by-case economic analysis by the EBT vendor of transaction acquiring costs from a third party versus the local network.

ISSUE 5 *How well equipped is the FNS authorized food retailer base to support expanded Food Stamp EBT, and where is it heading?*

This study included a focused analysis of twelve metropolitan areas to determine the proliferation of on-line debit capable payment systems among authorized food retailers.[29] The selected areas include several in which debit has developed ahead of the national average and others in which terminal deployments are lagging. This cross-section provided a rich basis for analysis and for drawing the conclusions presented in these pages.

Current Debit Coverage of FNS Retailers

POS terminal deployments have enjoyed significant growth nationally in recent years, particularly in the food retail market segment.[30] In general, large food retailers, convenience stores, and specialty food stores have experienced this growth, with smaller low-volume independent groceries less affected. Several economic factors contribute to this:

- ✓ Merchant acquirers focus on signing those retailers with the highest transaction volumes, stable financial positions, in areas with established card bases.
- ✓ The perceived need to increase customer convenience, to gain or simply maintain market share, can motivate retailers to add debit and other payment services. This is particularly compelling for low-volume, high margin retailers (e.g., specialty food stores) whose customers expect the service.
- ✓ The investment in payment systems is easier for large retailers to justify in terms of spreading fixed

[29] The twelve areas were selected by FNS on the basis of states' EBT planning at the time, and the research value of each area (e.g., urban and rural components, cross-border shopping area, etc.)

[30] As noted in Issue 1, POS terminal deployments have grown at an annualized rate of 29.0% over the last five years. In the grocery and convenience store market segments, POS deployments have grown over the same period at annualized rates of 38.6% and 33.5% respectively.

costs and gaining economies of scale across many stores.

Our analysis of data collected across the twelve study sites supports the evolutionary picture these factors suggest. **Table I.5.1** describes the availability of on-line debit by food retailer type in each study area.

Summary On-Line Debit Coverage
for FNS Authorized Food Retailers as of October 1993

Study Area	Food Stamp Authorized Retailers with On-line Debit				
	Supermarkets	Grocery Stores	Convenience Stores	Other	Total
Southeast NH	37 (67%)	10 (18%)	6 (11%)	2 (4%)	55 (100%)
Essex County, NJ	27 (96%)	0 (0%)	0 (0%)	1 (4%)	28 (100%)
New Castle Co., DE	34 (92%)	1 (3%)	0 (0%)	2 (5%)	37 (100%)
Greater Atlanta	60 (69%)	0 (0%)	25 (29%)	2 (2%)	87 (100%)
Charleston, SC	0 (0%)	0 (0%)	14 (100%)	0 (0%)	14 (100%)
Cleveland	35 (78%)	0 (2%)	7 (18%)	1 (2%)	43 (100%)
South Chicago	101 (100%)	0 (0%)	0 (0%)	0 (0%)	101 (100%)
Des Moines, IA	32 (86%)	1 (3%)	4 (11%)	0 (0%)	37 (100%)
St. Louis, MO	110 (94%)	2 (2%)	0 (0%)	5 (4%)	117 (100%)
Houston	292 (65%)	21 (5%)	103 (28%)	11 (2%)	427 (100%)
Oklahoma City	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (100%)
San Bernardino Co., CA	49 (64%)	1 (1%)	24 (30%)	4 (5%)	78 (100%)
TOTALS:	**777 (76%)**	**36 (3%)**	**183 (18%)**	**29 (3%)**	**1,025** (100%)

Table I.5.1

As the table illustrates, on average **75 percent** of the food retailer debit deployments are in supermarkets. When combined with convenience stores, this total climbs to **94 percent** of all deployments. The data clearly suggests that significant new deployments in small-medium sized retailers will be required in every area to support EBT implementation.

Table I.5.2 below expands the analysis to show debit capable retailers as a percentage of all authorized retailers in the area. ***Of***

the twelve areas selected, the most equipped was Houston with 19 percent of all authorized retailers debit-capable, while Oklahoma city was least equipped with 0 percent. Table I.5.2 also describes food stamp redemptions at debit-capable retailers. In general, an area's highest volume authorized retailers (i.e., large chain stores) capture the majority of food stamp redemptions each month. With terminal deployments concentrated in the higher volume retailers, this suggests that debit-capable retailers account for a disproportionate share of monthly redemptions.

Contribution of Debit-Equipped Stores to Area Food Stamp Redemption Volume as of October 1993

Study Area	Percent area FSP stores with debit	**Percent area total monthly FS redemptions in these stores**	Percent debit-equipped stores meeting FNS deployment requirements
Houston, TX	18.5%	**41.2%**	99.1
Des Moines, IA	18.3	**50.6**	100.0
New Castle Co., DE	12.3	**63.9**	91.9
SE New Hampshire	12.2	**66.3**	100.0
San Bernardino, CA	10.0	**29.1**	96.2
St. Louis, MO	9.0	**47.9**	84.7
Greater Atlanta	7.7	**28.2**	100.0
Charleston, SC	4.9	**0.5**	92.9
Essex County, NJ	3.7	**30.5**	100.0
Cleveland, OH	3.6	**28.4**	95.4
South Chicago	2.7	**13.1**	99.0
Oklahoma City	0.0	**0.0**	N/A
Averages	**8.6%**	**33.3%**	**96.3%**

Table I.5.2

As the right column of the above table indicates, knowing which retailers have existing on-line debit provides only part of the EBT-readiness picture. Also of interest is whether these terminal deployments meet FNS regulatory requirements. Our analysis therefore included the application of the deployment formula in 7 CFR §274.12(g)(4)(ii) to the area datasets. In short, the results

indicate that nearly all debit-capable retailers have deployed adequate terminals to meet the regulatory requirements. This is illustrated below in **Table I.5.3**.

Twelve-Area Terminal Deployment Summary

Retailer Type	Level of Deployment*			Total
	Full	Part	None	
A	110 (85%)	20 (15%)	5,712	5,842
B	505 (99%)	6 (1%)	898	1,409
C	350 (100%)	1 (0%)	5,687	6,038
Total	965 (97%)	27 (3%)	12,297	13,289

Table I.5.3

Legend

A: Avg. Monthly FS sales > 15% total food sales ⇒ all lanes must be deployed. All retailer types.

B: Supermarkets: Avg. monthly FS sales < 15% total food sales ⇒ one terminal for each $11,000 in monthly FS volume up to # of lanes in store.

C: All others: Avg. monthly FS sales < 15% total food sales ⇒ one terminal for each $8,000 in monthly FS volume up to # of lanes in store.

* Retailers fully, partially, or not at all meeting the regulatory requirement for terminal deployment as set forth in 7 CFR §274.12(g)(4)(ii).

The percentages noted in the "Full" column reflect retailers fully meeting the FNS deployment requirement *as a percentage of all retailers with on-line debit*. Over the twelve study areas, **97 percent** of the retailers with on-line debit have deployed sufficient terminals to meet the FNS regulatory requirement.

Outlook for the Future

Current trends in the growth of consumer payment services, and in particular on-line POS debit, are expected to continue throughout the remainder of the 1990s. The food retailer POS market is seen as far from saturated; quite consistent with the data collected under this study. However, market segments offering high volume potential merchants (e.g., fast food chains, pharmacies) are prime targets for on-line debit.

Supermarkets and large groceries will likely continue to generate the majority of POS debit growth in the food retail sector. Trends toward integrated multi-application payments systems reflect large retailers' desire to support all payment services on a single platform. In addition, recent downward price movements on stand-alone terminal equipment, could lead to debit penetration in

the smaller "mom & pop" type stores. Both trends reflect anticipated "un-assisted" (i.e., non-subsidized) growth in POS debit deployments. As EBT becomes a household word in the retailer community, however, the clear potential for assisted growth is on many retailers' minds. Indeed, in many areas, EBT has long been viewed as a catalyst for payment systems development. Without clear direction as to the terms of the deal, if any, the business case for debit will likely remain unresolved for many smaller retailers.

Summary Implications for EBT Planners

While in absolute terms the FNS authorized retailers in the study were significantly underserved by POS debit (8.6%), those retailers with debit account for a disproportionate share of monthly food stamp redemptions (33.3%). This is significant in several ways. Existing debit-capable retailers will likely add EBT to their platforms. Planning for case conversions and roll-out can benefit by taking account of the marginal contribution of each store to area monthly redemptions. The study presents GIS mapping techniques that can assist in this process. In general, 96.3 percent of debit-capable authorized food retailers in this study currently meet or exceed the FNS regulatory lane deployment requirements.

ISSUE 6

What are the issues in retrofitting existing terminals (to support Food Stamp EBT) in light of issues of retailer payment systems business decisions?

The Payment System Business Decision

Competition drives retailers to provide payment services including on-line debit for commercial transactions. The competitive forces shaping a retailer's business decision are many; certainly there is no single formula to determine when the right time has come to implement electronic payments at the point-of-sale. If any one factor stands out, it's the retailer's desire to capture additional market share by providing consumers greater convenience and efficiency in shopping — simply another means of product differentiation. Following close behind are the financial factors motivating the business decision. Credit and debit has been proven to boost sales in food retail establishments as consumers will tend to buy higher margin items and generate larger tickets overall. In addition, electronic payments systems can help reduce the transaction processing costs, increase checkout lane throughput, and decrease the time spent handling and settling cash and check transactions. Electronic payment systems often begin with check authorization, an important tool in reducing losses from bad checks.

As in any economic model, the market forces of supply squarely meet those of demand in determining a retailer's final business decision. The suppliers of retail payments services have grown beyond an initial cadre of financial institutions to include third party processors, independent sales organizations (ISO), regional networks, and among others, wholesale grocer supply companies. Regardless of their title, in soliciting retailers to purchase payment services each of these entities is acting as a merchant acquirer. Merchant acquirers are interested in acquiring and retaining the highest calibre of merchants in a sales territory. They carefully screen merchants for integrity and profitability to minimize the possibility of fraud losses and collections resulting from bankruptcy. Usually these firms are responsible for deploying terminals: the sale and lease of equipment and the installation and maintenance of terminals. Their ability to provide an attractive payment services product, as well as to meet retailer needs, and assuage anxieties in a price-competitive environment, shapes the growth of on-line debit contract-by-contract.

The retailer must weigh many options: the decision to implement an electronic payment system is complicated. Implementing an in-house solution versus out-sourcing; what payment services to support (e.g., credit, debit, EBT, ACH debit, check authorization) and when; and what technology platform is best suited to the task. These and many other options are factored into a decision that may ultimately be driven by a nearby competitor's decision to implement an electronic payments system.

Why Retrofitting is Important to Retailers

Our research indicated that, if given the choice, food retailers will strongly prefer to keep all payment services on a single platform. Reasons for this are technical, operational, financial, and for many ideological. From a technical standpoint, an alternative payment system to support EBT represents an inefficient use of resources. EBT vendor-deployed stand alone locally connected systems in multi-lane retail environments require time consuming additional hardware and wiring in the lane and another back-office POS controller, which complicates existing store telecommunications infrastructure.

Adding an "EBT-only" system in the lane creates operational challenges that retailers seek to avoid. For example, clerks must be trained on several payment systems likely to use different terminals, menu screens, key-pad layouts, and exception processes. Further, the EBT system represents an additional settlement point for the retailer and adds reconciliation responsibilities at multiple levels (e.g., terminal, clerk, store, chain). This complicates several tasks that retailers currently strive to simplify.[31]

From a financial perspective, retailers place a premium on check-out lane space, which is valuable for product placement as well as customer through-put. Vendor-deployed EBT terminals compete for this space, constraining the retailer's options for other uses such as targeted marketing systems, check authorization equipment, and the like. Retailers have also expressed concern that stand-alone EBT systems provide opportunities for keying

[31] As one retailer told us, it's much easier to settle $1 Million of business with one interface point than $500,000 with two.

errors that are eliminated with integrated systems. For example, the clerk must enter the total sale amount in a stand-alone terminal whereas it transfers from the ECR in an integrated system.

Finally, some retailers characterized their opposition to EBT vendor-deployed terminals on *ideological* grounds. Such retailers value the benefits of EBT, but seek to maintain complete control over the payment platforms in their stores. They regard EBT to-date as having "put the cart before the horse" by limiting their choices in the technology and capabilities of a major store system. This consideration highlights the importance of states working closely with retailers who have existing payment systems when planning and designing an EBT system.

Technical Issues in Retrofitting Current Payment Systems

Several issues related to the discussion of retrofitting existing retailer payment systems should be introduced at the outset:

- ✓ First, it's more than the terminal that must be modified to support the EBT application. Depending on the in-lane, in-store, and chain-level configurations, modification requirements will vary.

- ✓ Secondly, the occasional assumption that, "the more sophisticated the payments system, the easier the retrofitting," can be false. In fact, as payments functions are distributed across many zones in an integrated system, retrofitting may require modifications in each zone. We estimate that for some ECR systems, if the debit feature is not currently supported, a major development effort is required.

FNS Functional Requirements for POS Devices

Current Food Stamp Program EBT regulations provide the sole government guidelines for new deployments and retrofitting existing equipment. At a minimum, to proceed with certification for food stamp EBT, the payment system must support:

- PIN Encryption and Non-Display - utilization of the Data Encryption Standard (DES) algorithm at the point of PIN entry, and non-display of PIN on the terminal screen. This is fully consistent with ANSI X9.8 standards followed in commercial POS debit.

- Balance Inquiry and Non-Display - balance inquiry function must be available but balance cannot be displayed on terminal screens in the check-out lane.

- Printed Receipt - must be provided with each EBT transaction and must contain transaction type, purchase amount, remaining balance, date of transaction, terminal location, and account code or recipient code.

- Minimum Transaction Set - the payment system must be capable of providing authorization or rejection of purchases, refunds or credits, voids or cancellations, key-entered transactions, balance inquiries, and settlement or close-out transactions.

Retailer Payment System Zones

Payment systems vary greatly in terms of sophistication and compatibility with EBT requirements. This discussion assumes an existing *on-line debit capable* payment system, the configuration of which can vary from stand-alone direct connect to a fully integrated chain-wide system. A useful schematic tool when discussing retrofitting is to present the payment system in the context of it's five zones. First introduced in the discussion of Issue 4, these are presented again in **Figure I.6.1** below. The discussion then summarizes the key technical issues in retrofitting each zone to support EBT.[32]

Zone 1: Store Level - Depending on the configuration, this includes modifications to the POS terminal, POS controller, ECR, ECR controller, and wiring.

[32] A more detailed discussion of the retrofitting issue is presented in Volume II, Section III of this report.

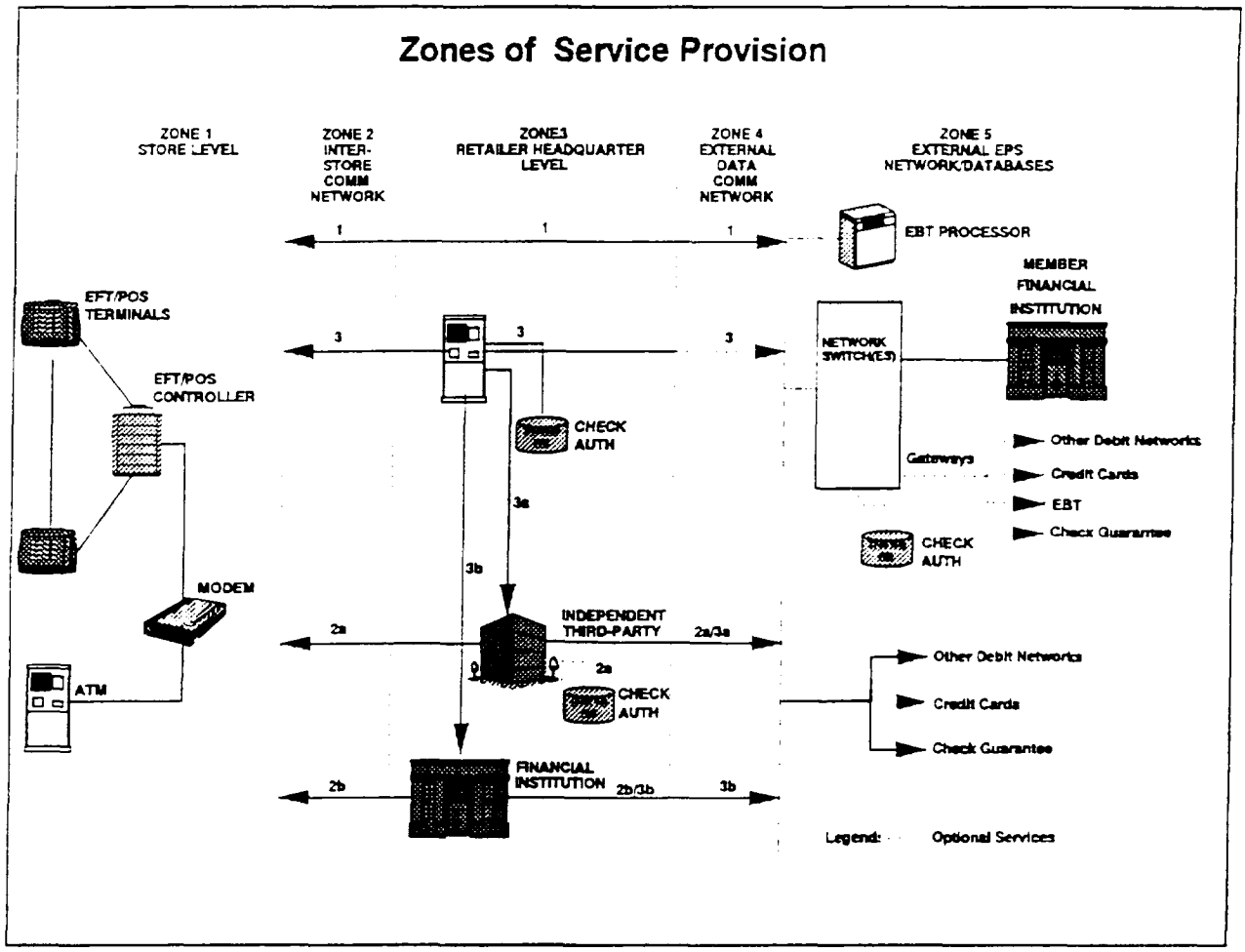


Figure I.6.1

✓ *POS Terminal* - Newer generations have much more resident intelligence than older ones, are less likely to face memory constraint, are more easily programmed, and are more feasible for multi-program EBT. Terminals capable of downline loading of software (i.e., remote updating from host) make upgrades much easier. More applications means more memory, but memory requirements are also tied to operating language (e.g., a minimum of 128K is required for C-programmed terminals, while proprietary languages are more efficient.) In addition, PIN encryption at the point of entry is required of all EBT POS terminals and has presented a challenge in some EBT sites.

✓ *POS Controller* - When intelligence is at the terminal, modifications are minor to the controller for message and

communications. Some modifications to support message sharing with the ECR controller will be necessary in an interfaced configuration.

- ✓ *ECR/ECR Controller* - When intelligence is not in terminal, application software must be developed for the ECR. Constraints of software, memory, connectivity, and design all become factors. Our assumption that on-line debit is already supported implies full receipt printing and an existing PIN pad in the lane.

- ✓ *Wiring* - Existing wiring will likely be sufficient if debit is currently supported. Anticipate cost for mounting and dressing wires if additional terminals must be added.

Zone 2: Inter-Store Communications - Existing leased line to the headquarters or third party is likely if payment services are currently supported. Leased lines typically support multiple applications and require no modification for EBT. Retailers with existing dial-up line(s) must consider the impact of multiple programs and increased electronic transaction volumes.

Zone 3: Chain Level Interfaces - Single account modifications are easier than multiple accounts (i.e., transaction code for each benefit type). Routing transactions through existing third party or network interface requires minor modifications by all parties to recognize the new message format(s). Establishing a new interface to an EBT processor requires, in addition, installation and testing of a new telecommunication connection. Standard message format is critical to simplifying the host interfaces that would be required for a multi-state food retail chain.

Zone 4: External Communications - No additional modifications are necessary for either dial-up configurations or payment systems using a leased line.

Zone 5: Payment System/Network Databases External Interfaces - If the network switch is used, minor modifications are required depending on the flexibility of switching software. Most networks have extensive message translation capabilities and see EBT as a minor change. If a third party processor is used, the interface to the EBT processor must be built/modified, tested, and certified.

Summary

We present above only a brief introduction to retrofitting issues. Food retailers and equipment vendors alike agree that retrofitting existing payment systems will have to be approached on a case-by-case basis. In doing so, before writing the first line of new code, both parties must carefully consider:

- ✓ *What payment services are currently supported?* If on-line debit is not supported, additional hardware costs (i.e., PIN pads, external printers, mag-stripe readers) should be anticipated. Further, existing equipment (e.g., credit terminals) may neither have adequate ports available nor expandable memory.

- ✓ *What is the in-store configuration?* Stand-alone, interfaced, or fully integrated each carry their own set of retrofitting considerations. If ECRs are used, is it stand-alone, master-slave, or controller based? Where does the intelligence reside, and can the constraints be overcome?

- ✓ *How is the host-level interface accomplished?* Does the retailer drive its own terminals and switch? Should direct interface to the EBT processor be considered? If a third party drives terminals or acquires transactions, what is the cost of accomplishing the EBT interface?

- ✓ *Who does what, and at what cost to whom?* Roles and responsibilities from concept through certification and testing must be clarified, as should cost sharing arrangements, if any, before proceeding.

Our lengthy and candid discussions with equipment vendors, retailers, and processors revealed several causes for optimism with regard to retrofitting payment systems to support EBT. First, equipment vendors are considering EBT in the design of newer generation terminals. For example, some new terminals physically separate application processing so that adding a new application can be accomplished without affecting (i.e., and therefore having to re-certify) current application(s). Secondly, retailers are moving toward integrated payment systems in which EBT is anticipated.

For example, some retailers' current software contracts include writing the EBT application when needed.

The range of equipment configurations in retailer stores will make retrofitting for EBT a complicated effort. This emphasizes the importance of states carefully assessing existing store payment infrastructures when planning EBT systems. Equipment vendors are considering EBT in the design of newer generation terminals and some retailers are moving toward integrated payment systems in which EBT is anticipated.

ISSUE 7 *What are the implications of potential multi-state, multi-program EBT configurations on pricing?*

Introduction

To date, pricing for EBT services has been determined through competitive procurement of an EBT vendor by a unit of government. The selected vendor is contractually bound to provide the full range of EBT services, usually in return for a *per case per month* fee. Fee arrangements have varied somewhat over time, as states and vendors seek to limit their exposure.[33] The general basis of payment for the EBT "bundled service" has not changed.

The advent of multi-state, multi-program EBT has numerous implications on pricing, as the historical model may no-longer fully apply. There are three major implications, and various related implications, are as follows:

(1) *Processor Configuration* - A core determinant of pricing in a multi-state system will be the number of EBT processors serving the states. Scale economies are more easily gained with a single processor. The nature and degree of these economies is discussed below.

(2) *Third Party Acquirers* - As advanced throughout this document, multi-state commercially-based EBT may see a stronger role for third party processors and retailer in-house systems. If a separation of traditionally (i.e., in EBT demos) linked issuer and acquirer functions occurs, it has pricing implications. What form, if any, should acquirer fees for EBT take? Should government set reimbursement schedules or empower EBT vendors to negotiate their best prices for acquiring transactions from third parties?

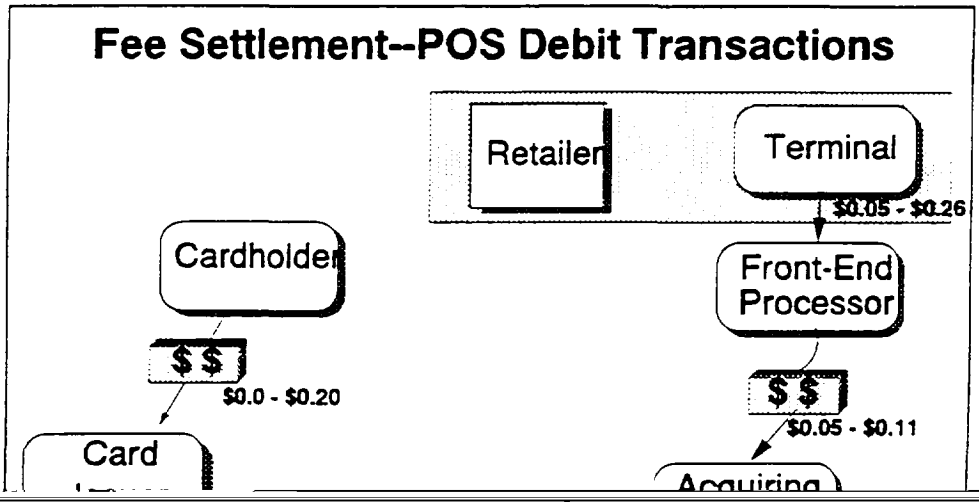
(3) *The Closer to On-line Debit, the Better the Price* - This applies to every aspect of the system, from transaction sets and message formats to settlement and reporting requirements. The need for EBT operating rules and

[33] For example, a per transaction fee capped at a total cost per case per month limits shifts the risk of unforseen high monthly recipient transaction activity to the vendor.

standards is critical to ensuring the most competitive pricing in a multi-state, multi-program environment.

Overview of Commercial Debit Pricing

The flow of transaction fees in the commercial on-line debit POS network environment is presented below in **Figure I.7.1**. As the figure illustrates, switch fees in on-line debit POS are generally split between the issuer and acquirer. This differs significantly from the ATM environment, in which the card issuer generally pays the full switch fee as well as an interchange fee to the acquirer.



terminal management fee covers the costs of transaction routing, telecommunication management, and problem resolution/help desk. The acquiring bank pays the network switch between 2.5 to 10 cents per transaction, keeping approximately 1 to 2.5 cents itself to cover costs such as ACH clearings. The card issuer also pays the network a switch fee between 3 to 5 cents per transaction, and often passes this cost along to the consumer in the form of service charges or transaction fees.

There are, of course, additional fees supporting on-line debit POS that are not captured through the *per transaction fees* described above. Merchants leasing their equipment will generally pay between $35 to $65 monthly per terminal. Included in this are the costs of terminal deployment and wiring. Retailers also must pay the telephone company for monthly communications charges for dial-up or leased lines. Exceptions such as chargebacks and adjustments are billed on a per-item basis.

Relating EBT to Commercial Debit

It is extremely difficult, and somewhat dangerous, to attempt a direct correlation between commercial POS debit and EBT pricing. At the heart of the matter are the many differences between the responsibilities and liabilities a company faces as an EBT vendor compared to those of being an EFT processor. Specifically, our interviews with EFT processors identified several core differences between the two services:

- ✓ Training of recipients, at least during roll-out, is often the responsibility of the EBT vendor and has no commercial analog;
- ✓ Help Desk staffing and operations costs can often exceed commercial levels due to benefit issuance cycles and the requirement that the EBT vendor provide centralized support for all terminal drivers;
- ✓ Settlement Costs - Multiple settlement points and the need to support reconciliation at the chain, store, clerk, and terminal level add costs above the commercial model;

- ✓ Eligibility System Interfaces are costly to create and virtually non-standard nationwide. EBT vendors must accommodate differences in state systems capabilities, record formats, communications protocol, etc., all of which can carry significant costs[35];

- ✓ Non-Standard Acquirer Interfaces - EBT presents a new transaction set, message format, and message contents that can require both modifying existing interfaces (e.g., to the network switch) and creating new direct links (e.g., to third party processors). Operating rules and standards will help greatly here;

- ✓ Reporting Requirements for EBT generally well exceed current reporting in the commercial environment. Standardized requirements can help lower this cost; and,

- ✓ Penalties and Contingency Requirements, such as *complete hot-site back-up*, are costly to provide and, to date, non-standard among commercial processors. Incorporating penalties for service interruptions can have a severe impact on EBT pricing.

Despite these significant differences, there are distinct similarities between commercial debit and EBT that, if exploited, could contribute to lower pricing. These are addressed below.

Keys to Competitive Pricing

- *Enable competition for merchant acquirer services.* By separating the issuer and acquirer sides of EBT, the service more closely approximates the commercial debit model. By allowing retailers to select from a group of terminal drivers, basic economic principles suggest that both choice and price competition are enhanced. Operating rules and standards are a critical pre-requisite.

[35] One EBT vendor noted that in excess of 1,000 staff hours were required to develop and test the host interface to a state's eligibility systems.

- *Expect Volume Discounts from Terminal Vendors.* - Most vendors contacted through this study had never specifically priced an order of the magnitude a multi-state EBT system represents. The greatest equipment discounts can be achieved by large one-time orders, enabling a complete production run for one customer. The potential advantages of volume terminal orders must be weighed against the value of competing the terminal driver function as described above.

- *Per Transaction EBT Pricing Captures Vendor Scale Economies* - States are reluctant to assume the risk of high monthly transactions, but vendors argue that *per case month* caps inhibit volume discounting. Volume discounts come later in EBT than in debit because there are more fixed costs to cover. At least under per transaction pricing, volume discounts become available to the state after this threshold is cleared.

- *Malleable Traditional Fee Structure.* - EBT vendors will seek to acquire transactions from retailers and third parties at the lowest cost. The vendor will generally evaluate using the network switch versus creating or modifying a direct interface. Direct interfaces buypass the network and create a direct fee payment between the vendor ("issuer") and the third party or retailer ("acquirer). Networks too have shown flexibility with EBT, in some instances dropping the acquirer's switch fee and charging only the issuer.[36]

Summary

While EBT transaction processing closely mirrors commercial debit, the differences make price comparisons very difficult. In particular, EBT introduces additional responsibilities and technical challenges for the EBT processor (i.e., recipient training, help desk support, non-standard interfaces, reporting requirements). Interviews with EFT processors, terminal vendors, and regional networks suggested several strategies for aligning EBT pricing more closely with commercial on-line debit. These include: (1)

[36] The argument is that the acquirer's fee generally supports network brand management in the lane, a commercial function not applicable in EBT.

enabling competition for merchant acquirer services; (2) making volume purchases to capture scale economies through equipment and transaction price discounts; and, (3) developing flexible fee structures which enable the EBT vendor to pursue the most economical means of acquiring transactions.

ISSUE 8 *Can settlement and reconciliation procedures of EFT processors serve as a guideline for a multi-state EBT solution?*

Introduction and Current Environment

This study of the EFT commercial infrastructure focused entirely on the entities and functions comprising the front-end processing of transactions (i.e., from initiation to authorization). Secondary emphasis was placed on the settlement and reconciliation activities that comprise what is known as back-end processing.[37] Throughout the study, however, our research revealed critical linkages between transaction authorization and funds flow activities with implications for multi-state EBT. These are discussed in detail below.

In the current commercial environment, each debit transaction immediately creates a memo post on the consumer deposit account, reserving the funds and reducing the balance available. At the end of the day, the memo posts are used to reduce the actual account balance. At the same time, the process of crediting food retailers and ATM owners is initiated through the network net settlement procedure. Commercial networks compute the net settlement position of each member (i.e., total credits less debits) and initiate settlement funds flow through a batch process. This process results in the transfer of funds from net debit institutions to net credit institutions. Food retailers participate in the network through some form of sponsorship, generally with a financial institution acting as their merchant bank. In many networks, members maintain deposit accounts at a common financial institution; enabling the clearing of accounts at the end of the day. Other mechanisms including the Federal Reserve net settlement process and ACH net settlement facilitate funds flow.

[37] FNS decided to limit this study to front-end processing based on the concurrent development, under separate task order contract, of options and specifications for EBT settlement and reconciliation services.

Implications for Multi-State EBT

To date, the greatest difficulties in accomplishing EBT settlement have occurred in the timing of funding the EBT vendor's account at the concentrator bank. Many EBT sites have been unable to meet the NIH-imposed shut down in the Treasury's Payment Management System (PMS) for initiating overnight draws of Federal funds. In addition, delays have been experienced at Treasury in getting EBT payments into the Fedwire queue. These are critical components of the current settlement process which, in summary, flows as follows: each afternoon following cut-off, the concentrator bank accepts a payment file from the EBT processor to initiate retailer credits; through the ACH process, the concentrator originates retailer credits and the debit of its Federal Reserve account. When the ACH debits the concentrator's Federal Reserve account prior to receiving Federal funds credit, an overdraft occurs. Daylight overdrafts are common in the EBT projects, and are implicitly financed by the concentrator bank. This procedure is no longer viable for large scale EBT.

The commercial environment does not experience these funding process irregularities. Our research found general consensus among retailers, processors, and networks. They all believe in the following:

- ✓ Current commercial practices for settling ATM and POS transactions to their owners (i.e., banks and merchants) will incorporate EBT with relative ease;
- ✓ Network net settlement procedures may provide a model for achieving inter-state EBT settlement, provided that the pre-funding requirement in the commercial environment can be addressed; and,
- ✓ Standard settlement procedures and reporting requirements are critical to minimizing the cost of service.

Obviously these views are based on commercial experience and there may be government-specific experience considerations that would change their views. However, to the degree commercial standards apply, specific recommendations regarding

standardizing settlement and reporting requirements included the following:

- Currently the EBT processor settles to the merchant level in all cases. This ensures the merchant can be settled for voice-authorized transactions. Third parties entering EBT should be able to "step-up" to services. This would enable the EBT processor to settle to the processor-level, which will reduce its costs.

- Retailers interviewed want EBT settlement to fit within their current business relationships and merchant accounting systems. In their opinion, and that of the EFT processors, each additional link (i.e., EBT processor interface) adds another costly settlement point. This underscores the importance to retailers of requiring third parties to settle at the merchant level. Major third parties currently offer single point settlement for retailers, and will seek to maintain this for EBT.

- EFT processors expressed strong interest in standardizing EBT system reporting requirements. To the degree that settlement and reconciliation carry customized reporting requirements, eliminating them is an area of potential cost savings. Multi-state EBT system cost-effectiveness is furthered if a basic "core" of required reports can be defined, and data transferred to States for in-house customized reporting.

Summary

There is general agreement among the stakeholders interviewed that current commercial settlement practices will incorporate EBT with relative ease. Critical to this, however, is the establishment of standard EBT settlement procedures by the government.

ISSUE 9 *What current trends in the EFT infrastructure are shaping the EBT stakeholders of the future?*

Continued Network Consolidation

The past several years have witnessed an evolutionary trend among shared regional networks toward the development of super-regional networks. A number of factors have contributed to this movement, including:

- ✓ Increased processing efficiency - Although the subject of debate, consolidation will continue as long as network executives believe there are economies of scale to be gained.
- ✓ Reduced processing and membership fees - Passing on the benefits of processing efficiencies to members in the form of lower prices.
- ✓ Interstate bank mergers have created new bank entities with equity positions in multiple contiguous regional networks. Network consolidation can simplify business relationships and reduce costs.
- ✓ Critical mass needed to raise capital for developing new products and services - Network owners are looking to expand beyond ATM sharing and on-line POS debit in order to support a host of new services including, but not limited to, EBT, health claims processing, electronic bill payment services, home shopping, and check verification.

This trend could have significant implications for multi-state EBT programs. As networks "take back" many of the payment services functions traditionally out-sourced to third parties (e.g., terminal deployment and driving and merchant acquirer services) they enhance their positioning as potential EBT vendors. In addition, the super-regionals' geographic coverage maps well with multi-state EBT proposals. Finally, the processing efficiencies enjoyed by super-regionals could make them very price competitive in the future.

Third Party Processors Becoming Major Stakeholders

Network owners are realizing they've lost control of segments of the payment services industry to non-bank players (i.e., third party processors). With the sphere of services expanding, network efforts to regain lost markets will likely not damage the growth of third parties. To the contrary, third party processors are positioned for significant growth as EBT develops. Several EFT processors suggested that third parties' comparative advantage lies in providing single point net settlement services to retailers. As one processor noted, "Settlement is the hardest thing to do right, and third parties are good at it because they've gained experience as processors for the networks."

The potential use of third party processors in EBT is a recurrent theme in this study. This trend has implications for other EBT issues including the need for operating rules and standards and the need for clarification of pricing to include third party acquirers.

Independent Sales Organizations (ISOs) Entering Debit

Historically, ISOs have represented acquiring banks as merchant acquirers for credit services. Seeing the rise in on-line debit and other service opportunities, ISOs are gaining ground in the debit community. These organizations will likely want to sell retailers EBT services in the future as part of a complete line of payment services. This has several implications on the development of EBT. First, key management becomes more complicated with an additional entity representing the front-end processor. Second, liability for on-line transactions must be clarified. Finally, a well defined and rigorous set of rules and standards must guide ISO (and third party) operations. Similarly, responsibilities for enforcing compliance must be clear to all stakeholders in the EBT system.

Expect Changes in POS Debit Pricing Structures

Recently, several POS debit networks have added acquirer-paid interchange fees to their fee structure. In this model, the acquirer pays the card issuer a per transaction fee essentially for the privilege of having access to the issuer's card base. Issuers claim the fees are needed to offset their operating costs; particularly for managing PIN and encryption files and marketing their debit cards.

These fees are expected to become common across POS networks, in addition to the standard network switch fees generally split between the issuer and acquirer.

The implications of this development for EBT are curious at first, but upon inspection appear minimal. If applied to EBT, this model would see transaction acquirers paying the EBT vendor (i.e., card issuer) for access to the EBT card base. What is far more likely is that acquirers will demand some form of compensation from the EBT vendor for performing terminal driving and transaction routing functions that would otherwise befall the EBT vendor.

Summary

Trends in the commercial environment that may influence the development of EBT include: continued network consolidation, development of super-regional networks and interstate bank mergers (which bring increased processing efficiency and multi-state presence); reduced processing and membership fees; and, the potential expansion (beyond ATM sharing and on-line POS debit) to support new products and services (which bring cost sharing potential). Third party processors (non-bank players) are becoming major EBT stakeholders in the payment services industry. Independent sales organizations (ISOs), who have historically represented acquiring banks as merchant acquirers for credit services, are entering the debit community. And changing POS debit pricing structures may influence the positioning of stakeholders vis-a-vis compensation for services.

Summary of "EFT Commercial Infrastructures and Implications for EBT"

September 30, 1994

The report assesses the existing commercial infrastructure of on-line Electronic Benefits Transfer (EBT) in the context of multi-state, multi-program EBT. The findings are based on interviews of respondents involved with the EFT commercial infrastructure.

Key Issues.
Key issues for the Food Stamp Program include: (1) EBT operating rules and standards; (2) strategies to manage processor capacity and peak transaction loads; (3) the cost and technical complexity of creating interfaces among state systems, the EBT processor, and other stakeholders (e.g., third parties); and, (4) technical and cost challenges in retrofitting existing retailer payment systems to support food stamp EBT. The Report reviewed all available technology options and found that on-line continues to be the best way to build a national EBT system.

Third Parties.
An important trend is the emergence of third party service providers. The trend underscores the need for retailers to build EBT on their existing payment system platforms. This solution may increase price competition and thus result in reduced costs. As more third parties move to support the EBT application, the duties of the EBT processor will likely shift from terminal driving toward card issuance functions. With this shift, a corresponding need is created for operating rules and standards that clearly define the roles, responsibilities, and accountability of each stakeholder in the system. Respondents encouraged government leadership in this area.

The functions played by regional EFT networks and third party processors are changing but both will be critical to the future of food stamp EBT. The roles each will play will depend on the desire and ability of food retailers to maintain existing business and physical relationships while adding the EBT service; and, a case-by-case economic analysis by the EBT vendor of transaction acquiring costs from a third party versus the local network.

Market Penetration.
While in absolute terms the FNS authorized retailers in the study were significantly underserved by POS debit (8.6%), those retailers with debit account for a disproportionate share of monthly food stamp redemptions (33.3%). This is significant in several ways. Existing debit-capable retailers will likely add EBT to their platforms. Planning for case conversions and roll-out can benefit by taking account of the marginal contribution of each store to area monthly redemptions. The study presents geo-mapping techniques that can assist in this process. In general, 96.3 percent of debit-capable authorized food retailers in this study currently meet or exceed the FNS regulatory lane deployment requirements.

Retrofitting.
The range of equipment configurations in retailer stores will make retrofitting for EBT a complicated effort. This emphasizes the importance of states carefully assessing existing store payment infrastructures when planning EBT systems. Equipment vendors are considering EBT in the design of newer generation terminals and some retailers are moving toward integrated payment systems in which EBT is anticipated.

Cost Implications.
While EBT transaction processing closely mirrors commercial debit, the differences make price comparisons very difficult. In particular, EBT introduces additional responsibilities and technical challenges for the EBT processor (i.e., recipient training, help desk support, non-standard interfaces, reporting requirements). Interviews with EFT processors, terminal vendors and regional networks suggested several strategies for aligning EBT pricing more closely with commercial on-line debit. These include: (1) enabling competition for merchant acquirer services; (2) making volume purchases to capture scale economies through equipment and transaction price discounts; and, (3) developing flexible fee structures which enable the EBT vendor to pursue the most economical means of acquiring transactions.

There is general agreement among the stakeholders interviewed that current commercial settlement practices will incorporate EBT with relative ease. Critical to this, however, is the establishment of standard EBT settlement procedures by the Government.

Developing Trends.
Trends in the commercial environment that may influence the development of EBT include: continued network consolidation, development of super-regional networks and interstate bank mergers (which bring increased processing efficiency and multi-state presence); reduced processing and membership fees; and, the potential expansion (beyond ATM sharing and on-line POS debit) to support new products and services (which bring cost sharing potential). Third party processors (non-bank players) are becoming major EBT stakeholders in the payment services industry. Independent sales organizations (ISOs), who have historically represented acquiring banks as merchant acquirers for credit services, are entering the debit community. And changing POS debit pricing structures may influence the positioning of stakeholders vis-a-vis compensation for services.

Table of Contents

Appendix A:
Glossary of Terms

GLOSSARY

Access Device -- See Payment Card.

ACH Debit -- A proprietary off-line debit system established by a retailer. Cards are issued to approved customers and may be used exclusively at that retailer's locations. Settlement is performed through the ACH network.

Automated Clearing House (ACH) Network -- A network run by the Federal Reserve to electronically process funds transfers between member financial institutions. Typically used in a food stamp EBT system to transfer credits from the concentrator bank to financial institutions holding retailer accounts.

Acquiring Bank Processing and Support -- The bank which settles funds between the merchant, merchant acquirer, and the front-end processor each business day. This entity also provides risk management services which detects fraudulent merchant activity.

ATM Deployers -- Depository financial institutions (e.g., banks, thrifts, credit unions) that support proprietary or shared automated teller machines.

Automated Teller Machine (ATM) -- Unattended terminal from which one or more banking transactions can be performed, including balance inquiries, cash deposits, cash withdrawals, transfers between accounts, and payments on loans and credit cards. Requires card access.

Back-End Processing -- Funds settlement and reconciliation functions that follow the transaction authorization process.

Card Issuer -- The organization, typically a financial institution, that maintains the consumer relationship and depository account on behalf of the customer and issues the magnetic stripe card. The latter function is provided by the financial institution itself or a third-party on the financial institution's behalf.

Check Authorization -- The process by which a retailer verifies the authenticity of a check and/or its presenter. Check authorization systems vary in sophistication; four general constructs are presented below.

- Paper "hot" lists which identify all customers who have previously written bad checks in the store. There is no electronic capability in this option.
- In-store negative files tied to the existing scanning systems. The transaction is authorized against a negative file resident at the store controller.
- On-line check authorization against a headquarters central negative or positive file.
- Check authorization databases supported by outside service providers. Check verification is a service which verifies only that there is no record of bad check-writing behavior by the customer. It does not verify that sufficient balance exists to cover purchases or withdrawals.

Controller -- Also referred to as an in-store processor (ISP) or store controller. A computer, usually a PC, that controls the payments system in the store. In an integrated payments system, the controller also routes on-line debit transactions to the transaction acquirer.

Data Encryption Standard (DES) -- Standard for encrypting data to allow secure transmission of data between two points. In the EBT context, the DES employs a 56 bit key to encrypt the PIN using a Data Encryption Algorithm.

Debit Transaction -- Approval by the cardholder of the debit to his or her account. At the same time, it provides a claim of funds made by the acquirer (or card acceptor) against the card issuer.

Dial-Up -- A telecommunications configuration whereby a POS terminal connects to a host computer on an as-needed (per transaction) basis. See also Leased Line.

Electronic Benefits Transfer -- An electronic payments system that uses electronic funds transfer, automated teller machines, and point of sale technology for the delivery and control of public assistance benefits.

Electronic Funds Transfer -- Any transfer of funds, other than a transaction originated by check, draft, or similar paper instrument, which is initiated through an electronic terminal, telephonic instrument, or computer or magnetic tape so as to order, instruct, or authorize a financial institution to debit or credit an account.

Electronic Funds Transfer System -- System designed to facilitate the exchange of monetary value via electronic means. Objectives include expansion of time and location availability of basic financial services, and reduction of the present growth of paper volume (i.e., cash and checks).

Electronic Cash Register (ECR) -- An electronic device used at the lane level to record a retailer's sales. An ECR may be either connected with other ECRs in the store to a central processing computer, or stand alone.

Food Stamp Authorized Retailer -- Individual stores and/or corporate headquarters authorized by the food stamp program to accept food stamp benefits toward eligible food purchases.

Front-End Processor -- The entity that manages the telecommunications and terminal management infrastructure which routes location to another point, usually the transaction router, for the purpose of transaction authorization.

Front-End Switch -- *The entity in the EFT infrastructure that relays transaction information between the merchant acquirer and the customer's financial institution.*

Gateway Service Provider -- The entity that allows on-line debit transactions to be supported between and among a network switch, third party processor, EBT processor, or large food retailer. The most common gateway service providers are shared regional networks themselves and the national on-line debit networks (Interlink and Maestro).

Host -- A computer, usually a mainframe, that receives on-line debit transactions from the store level. Transactions are relayed by the host to the network switch, which routes them to the card-issuing bank for authorization.

In-Sourcing -- Developing the capability or purchasing services to perform a function "in-house" rather than contracting with another party.

Independent Sales Organization (ISO) -- An organization, usually contracted by a financial institution, that markets electronic payment services offered by the financial institution.

Integrated Configuration -- An electronic payments system in which the POS terminal, either directly or indirectly, sends to and receives information from the ECR. Two main types of integrated configurations exist:

- Interfaced: POS terminals are connected to a controller by means of a local area network. The controller may also support the ECR system, or is interfaced with the ECR controller. This provides an indirect exchange of information between the ECR and POS terminal in a particular lane.

- Fully Integrated: POS terminals are connected to ECRs in the lane, allowing for the direct exchange of transaction information.

Interchange Fee -- A fee paid by a card issuing bank to a transaction acquirer for an on-line debit or ATM transaction.

Leased Line -- A telecommunications configuration whereby a POS terminal possesses a dedicated connection to a host computer. See also Dial-Up.

Magnetic Stripe Reader (MSR) -- The component of the POS terminal that reads the magnetic stripe card. Occasionally referred to as a "card swipe".

Magnetic Stripe Card -- Benefit access card that contains encoded information on a magnetic strip. The strip may contain three information tracks. Track 2 is used for payments and benefits.

Merchant Acquirer -- The entity that drives or maintains (maintenance may be subcontracted) retailer POS terminals and routes electronically captured transactions to the correct card issuer, third party processor or network switch. Merchant acquirers include:

- POS Merchant Banks -- Financial institutions that act as merchant acquirers.
- POS Retailer Programs -- Retailers that act as merchant acquirers.
- EFT Processors -- Third party processors that act as merchant acquirers. A more comprehensive operational entity than the others, *providing both back-end and front-end* processing capabilities.

Merchant Bank of Deposit -- The bank that maintains the day-to-day cash management and cash, coin, and currency relationships with a merchant. This entity receives funds from the acquiring bank processor for electronic card activity. This bank may or may not be the acquiring bank depending on whether it supplies acquiring bank EFT services.

Network -- The entity that routes an EFT transaction from the front-end processor to the card issuing bank. Networks either perform the physical switching of the transaction themselves or outsource the function to another party. Networks are also responsible for the settlement of funds between entities in the EFT infrastructure. See also Switch.

Off-Line Debit -- A payments system in which a magnetic stripe card is used to draw upon a designated depository transaction account. Off-line debit differs from on-line debit in that transaction authorization usually consists of the manual verification of the customer's signature; and from credit in that settlement occurs through the automated clearing house (ACH) network.

On-Line Debit -- Also referred to as POS debit. On-line debit involves the use of a magnetic stripe card at a point of sale terminal to initiate a debit from a customer's demand deposit (checking) account and corresponding credit to the retailer's deposit account.
On-line debit contrasts with off-line debit and credit in that transaction authorization consists of the matching of a customer-entered PIN against a central database, and differs from credit in that settlement occurs through the automated clearing house (ACH) network.

Out-Sourcing -- Contracting out the performance of functions or services rather than performing them in-house.

Payment Card -- The vehicle by which the *consumer accesses the EFT infrastructure.* Predominantly, the cards have been magnetic stripe-based, and contain information on both the cardholder and type of account. The type of card and the business relationship between the merchant acquirer and the retailer determine the conditions and the timing of reimbursement to the retailer.

Personal Identification Number (PIN) -- An alphanumeric string, typically four characters or longer, used to verify the identity of a cardholder when performing an on-line debit transaction.

Piggybacking or Leveraging -- In the context of EBT, piggybacking refers to the use of the existing on-line debit infrastructure for the initiation, processing, and settlement of EBT transactions.

Point of Sale (POS) Terminal or POS Device -- An electronic device used to support the authorization function in a merchant location. At a minimum, the device includes a card-reading mechanism and dial-up telecommunications capability to operate in the payments system infrastructure. More sophisticated POS terminals can be integrated with an electronic cash register (ECR) or personal computer (PC) based system.

Primary Account Number (PAN) -- Number used to identify a customer's bank account. This number is transmitted, along with the PIN and purchase amount, to the card-issuing bank for authorization of the transaction.

Reconciliation -- A message that is generated by the acquirer (e.g., EBT processor) that advises the receiver of settlement information regarding transaction processing between the sending and receiving locations.

Retrofitting -- The modification of existing payments systems to support the EBT application.

Settlement -- The transfer of funds among entities in the EFT environment based on the transactions processed, up to a specified time.

Stand Alone Configuration -- An electronic payments system in which the POS terminal(s) can initiate transaction authorization requests and receive responses from a central database without need for connection or support from a controller or ECR.

Stakeholder -- Any entity (e.g., retailer, merchant acquirer, front-end processor, merchant bank of deposit, or acquiring bank) that plays a role in the initiation or processing of an EFT transaction.

Switch -- The entity that routes transactions for authorization from the point of acquisition to the card issuer. See also Transaction Router.

Third Party Processor -- A organization that drives and maintains retailer POS terminals, authorizes and processes transactions, and settles retailer accounts.

Transaction Acquirer -- An entity that drives terminals and terminal systems for the purpose of electronic capture and routing of transactions.

Transaction Authorization -- The process by which approval is given to permit a card or account to be used in a transaction on behalf of the card issuer. An authorization begins as a request that flows through the payment system between the retailer and card issuer, who approves or denies the request. An authorization approval from an issuer represents a promise to pay the retailer, contingent upon compliance with the operating rules and procedures for the transaction.

Transaction Router -- The entity that directs transactions from acquirers to card issuers. It receives transactions from a front-end processor and routes them to appropriate card issuers and other regional and national networks for authorization. The transaction router is responsible for single-point net settlement services (i.e., one net settlement total which includes both debit and credit transactions) for each entity to which it is connected. See also Switch.

Table of Contents

Appendix B:
List of Contacts

LIST OF CONTACTS

EFT Networks

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Bank One Services Corporation
350 McCoy Center
Columbus, OH 43271
Contact: Tim Rosenbusch

BankMate
220 South Jefferson Avenue
St. Louis, MO 63103
Contact: David Gerst

XPress 24
BayBanks
1 BayBank Technology Place
Waltham, MA 02154
Contact: Stacy Pinkherd

Cash Station
188 West Randolph Street
Suite 145
Chicago, IL 60601-2904
Contact: Kirk Ergang

ChecOKard
20 North Broadway
Oklahoma City, OK 73102
Contact: Gene Feisal

EXPLORE
Star System, Inc.
401 West "A" Street
San Diego, CA 92101
Contact: Nikki Shaw

Green Machine
(Now part of EPS)
Society Corporation
Merchant Services
900 Euclid Avenue
14th Floor
Cleveland, OH 44115
Contact: Dan Neistadt

EFT Illinois
421 South Mulford Road
Rockford, IL 61108
Contact: Mark Horwedol

Honor
Southeast Switch, Inc.
8720 Mourning Dove Road
Raleigh, NC 27615
Contact: Bill Kemp

Interlink
P.O. Box 8999
San Francisco, CA 94128
Contact: Janet Pruitt

KETS
(Kansas Electronic Transfer System)
1900 North Amidon
Suite 110
Wichita, KS 67203
Contact: Kathi Moore

MAC (New Hampshire office)
(Now part of EPS)
650 Elm Street
4th Floor
Manchester, NH 03101
Contact: Susan Zawodniak

MAC (Headquarters)
(Now part of EPS)
1100 Carr Road
Wilmington, DE 19809
Contact: Robin Mandell

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Peoria, IL 61656
Contact: Linda Bracken

Money Station
1395 East Dublin-Granville Rd
Suite 350
Columbus, OH 43229
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MOST
Internet, Inc.
11800 Sunrise Valley Drive
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Reston, VA 22091
Contact: Richard G. Lyons, Jr.

NYCE
3 University Plaza, Plaza 24
Hackensack, NJ 07601
Contact: Mark Abrahamson

The Owl
(Now part of EPS)
Central Trust Co.
(Now owned by PNC Financial Corp.)
Fifth & Main St.
Cincinnati, OH 45202
Contact: Emlyn Kemper

PULSE
600 Travis
Suite 942
Houston, TX 77002
Contact: Cindy Ballard

Shazam
Iowa Transfer System, Inc.
6700 Pioneer Parkway
Johnston, Iowa 50131
Contacts: Dave Fhelledy, Art Jones

SCS (Transdata)
120 North Robinson
P.O. Box 1010
Oklahoma City, OK 73101
Contact: Carolyn Lukow

Transfund
P.O. Box 2300
Tulsa, OK 74193
Contact: Bob Snyder

24-Hour Teller
Rodney Square North
Wilmington, DE 19890
Contact: Richard Wilhide

Yankee 24
6 Fairfield Blvd.
Wallingford, CT 06942
Contact: Dick Symington

Banks

Bank of Delaware
300 Delaware Avenue
Wilmington, DE 19801
Contact: Lynn Iore

First NH Bank
1000 Elm Street
Manchester, NH 03108
Contacts: Debbie Lagana, Bob Saoud

Wilmington Trust Company
Rodney Square North
1100 North Market Street
Wilmington, DE 19890-0001
Contact: Carol Townsend

Third Party Processors

BUYPASS the System
360 Interstate North Parkway
Suite 400
Atlanta, GA 30339
Contact: Rodney Bell

Concord/EFS, Inc.
2525 Horizon Lake Drive, Suite 120
Memphis, TN 38133
Contact: Collette Camerano

Deluxe Data Systems
8901 N. Kildeer Court
Brown Deer, WI 53209
Contact: Jane Coppolino

Mellon Bank
One Mellon Bank Center
Room 151-1020
Pittsburgh, PA 15258-0001
Contact: Nancie Lynch

Retailers

A&P Tea Company
(National Headquarters)
2 Paragon Drive
Montvale, NJ 07645
Contact: Francis Clark

A&P Tea Company (Atlanta Division)
1200 White Street SW
Atlanta, GA 30310
Contact: Bob Sharber

Acme Markets
75 Valley Stream Parkway
Malvern, PA 19355-0733
Contact: Al Lewis

Albertson's Incorporated
250 Parkcenter Boulevard
Boise, ID 83706
Contact: Art Powell

Aldi Foods
1200 North Kirk Road
Batavia, IL 60510
Contact: Scott Cornogee

Alpha Beta
See: Food 4 Less

BILO Incorporated
Devonshire Road
Mauldin, SC 29662
Contact: Judy Alexander

W.H. Braum, Inc.
3000 NE 63rd
Oklahoma City, OK 73125

Bruno's Inc.
P.O. Box 2486
Birmingham, AL 35201
Contact: Jim Boone

Butera Foods
1 Clock Tower Plaza
Elgin, IL 60120
Contact: Joseph Butera

Casey's General Stores, Inc.
1 Convenience Blvd.
Ankeny, IA 50021-8045

Circle K Corporation
1601 North 7th Street
Phoenix, AZ 85006
Contact: Stephanie LaStella

Convenient Food Mart
1100 Mentor Avenue
Painesville, OH 44077
Contact: John Becker

Crest Discount Foods
249 North Douglas
Midwest City, OK 73130
Contact: Nick Harroz

Cub Foods
P.O. Box 9
127 S. Water Street
Stillwater, MN 55082
Contact: Mark Barritt

Cub Foods (Atlanta franchise operation)
420 Thornton Road
Lithia Springs, GA 30057
Contact: Billy Grogen

Cumberland Farms
777 Dedham Street
Canton, MA 02021
Contact: Scott Winslow

Dahl's Foods
4343 Merle Hay Road
Des Moines, IA 50310-1411
Contact: Jerry Jones

Dairy Mart
1 Vision Drive
Enfield, CT 06082
Contact: Jeff DeLiesde

Demoulas/Market Basket
875 East Street
Tewksbury, MA 01876
Contact: Roland Kelly

Dierbergs Markets
P.O. Box 1070
Chesterfield, MO 63006
Contact: Steve Radcliff

Dominick's Finer Foods, Inc.
333 Northwest Avenue
Northlake, IL 60164-1696
Contact: Scott Hiss

Eagle Foods Center
Route 67 and Knoxville Road
Milan, IL 61264
Contact: Bob McNamer

Fareway Stores, Inc.
2600 8th Street
Boone, IA 50036
Contact: Vern Houseman

Fiesta Mart, Inc.
5235 Katy Freeway
Houston, TX 77007
Contact: Jim Cronan

FINAST
17000 Rockside Road
Maple Heights, OH 44137
Contact: Ron Sidoti

Fleming Foods
P.O. Box 26647
Oklahoma City, OK 73126
Contact: Ron Frost

Food 4 Less, Inc.
777 South Harbor Boulevard
La Habra, CA 90631
Contact: Steve Morrell

Food Lion
P.O. 1330
Salisbury, NC 28145-1330
Contact: Jeff Waldo

Food Saver
Scrivner Inc.
5701 North Shartel
Oklahoma City, OK 73118
Contact: Ray Grabner

Gerland's Food Fair
3131 Pawnee
Houston, TX 77054-3302
Contact: Kathy Swiedel

Git-N-Go Convenience Stores, Inc.
2716 Indianola Avenue
Des Moines, IA 50315
Contact: Pete Klindt

Grocer's Supply
3131 East Holcombe Blvd.
Houston, TX 77021
Contact: Greg McCann

Harris Teeter
P.O. Box 33129
Charlotte, NC 28233
Contact: Roger Helms

Heinen's Supermarkets
20601 Aurora Road
Warrensville Heights, OH 44146
Contact: Tim McLaughlin

Homeland, Inc.
400 NE 36th
Oklahoma City, OK 73105
Contact: Bill Rulla

Hughes Markets
14005 Live Oak Avenue
Irwindale, CA 91706
Contact: Bob Knowles

Hy-Vee Food Stores, Inc.
1801 Osceola Avenue
Chariton, IA 50049
Contact: Monnie Trumbull

Ingles Markets
1560 Highway 60 East
Black Mountain, NC 28711
Contact: Fred Griffith

Jewel Companies Management Corp.
O'Hare Plaza
8725 West Higgins Road
Chicago, IL 60631
Contact: Frank Eckstein

Kings Super Markets, Inc.
2 Dedrick Place
West Caldwell, NJ 07006
Contact: Frank Milo

The Kroger Company
Atlanta Regional Office
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Atlanta, GA 30345
Contact: Diane Jensen

The Kroger Company
Houston Marketing Area
16770 Imperial Valley Drive
P.O. Box 1309
Houston, TX 77001
Contact: Mary Jane Phares

Kwik Shop Inc.
734 East 4th Street
Hutchinson, KS 67504-1927
Contact: Connie Phillips

Lucky Stores, Inc.
6565 Knott Avenue
Buena Park, CA 90620
Contacts: Don Estephan, Bob Sloan

Majik Market
(Owned by EZ Serve)
2550 North Loop West
Houston, TX 77092
Contact: Ray Anderson

Marc's
(Owned by MGI)
6857½ Southland Drive
Middleburg Heights, OH 44130
Contact: Bruce Budinger

Mobil Oil Credit Corporation
11300 Corporate Avenue
Lenexa, KS 66219-1385
Contact: Tom Randolph

National Super Markets, Inc.
6050 North Lindbergh Blvd.
Hazelwood, MO 63042
Contact: Kim Ruhl

Pathmark Supermarkets
Supermarkets General Corporation
301 Blair Road
Woodbridge, NJ 07095
Contact: Frank Manna

Piggly Wiggly Carolina Co.
4407 Piggly Wiggly Drive
Charleston, SC 29423
Contact: Mike Hawkins

Publix Supermarkets, Inc.
P.O. Box 407
Lakeland, FL 33802
Contact: Earl Andrews

Purity Supermarkets
101 Billerica Avenue
North Billerica, MA 01862
Contact: Ed Collupy

QuikTrip Corporation
901 N. Mingo Road
Tulsa, OK 74116
Contact: David L. Reed

Ralph's Grocery
1100 W. Artesia
Compton, CA 90220
Contact: Kevin Davis

Randall's Food Markets
16000 Barkers Point Lane
Houston, TX 77079
Contact: Lonnie Varner

Reiser Foods
5300 Richmond Road
Bedford Heights, OH 44146
Contact: Al Van Luvender

Rice Food Markets
5333 Gulfton
Houston, TX 77081
Contact: Betty Weeks

Rite Aid Corporation
30 Hunter Lane
Camp Hill, PA 17011
Contact: Bob Kostosky

Schnucks Markets Inc.
11420 Lackland Road
St. Louis, MO 63146
Contact: Sue Kunstmann

Sellers Brothers
8011 Elvera
Houston, TX 77012
Contact: Debbie Norwood

Shaw's Supermarkets
P.O. Box 389
Stratham, NH 03885
Contact: William Adams

Shop 'N Save
Hannaford Brothers Co.
P.O. Box 1000
Portland, ME 04104
Contact: Laurel Tibbels

Shop 'N Save
P.O. Box 220068
Kirkwood, MO 63122
Contact: Gary Thomas

ShopRite (owned by Wakefern)
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Elizabeth, NJ 07207
Contact: Mary Ellen Gowin

Smith Food and Drug Centers, Inc.
1550 South Redwood Road
Salt Lake City, UT 84104
Contact: Todd Lillinquist

Stater Brothers Markets
21700 Barton Road
Colton, CA 92324
Contact: Ed Crowell

Stop 'N Go
National Convenience Stores
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Houston, TX 77001
Contact: Greg Stults

Store 24
184 Riverview Road
Waltham, MA 02154
Contact: Tom Jansinski

SuperFresh
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Florence, NJ 08518
Contact: Dennis McConney

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Hardware Manufacturers

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